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GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. The Railway Gazette *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 a.m. till 5.30 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

T.U.C. to Debate Nationalisation

At the annual Trades Union Congress at Blackpool on October 16, a report will be submitted on post-war reconstruction, in the course of which the General Council will make nationalisation of the railways and coal mines one of the primary objects. The report states that the transport, fuel and power, iron and steel industries are of such vital importance to the life and well-being of the nation that their immediate transfer to public ownership is essential, and that in the case of coalmining and of railways their present state of organisation is such that public opinion is most strongly prepared for the change to public ownership. The report urges the formation of a public corporation to take over the undertakings in a nationalised industry, and that governing boards should be appointed by a Minister responsible for the industry to Parliament. Compensation would be based on "reasonable net maintainable revenue" and be payable in Government bonds. It is added that if political opposition or legislative difficulties make it impossible to secure the complete transference of the whole of these industries to public ownership under one Act of Parliament, the nationalisation of the coalmines and railways should not be delayed, although the co-ordination of transport and the fuel and power industries under public control would be imperative.

A Half-Way House

Apparently on the basis that if the demand for total nationalisation should not get very far, it would be as well to have a compromise ready, the report goes on to suggest that short of complete public ownership the State could participate in the conduct of an industry by the direct acquisition of a key section or by financial and directive participation in particularly important companies, or by Government wholesaling. So far as transport is concerned, the T.U.C. would seem to be a little lonely in the advocacy of this policy, for the one point on which a fair measure of agreement has been reached as to post-war transport plans is that transport should be dealt with as a whole. The report also says that the task of trade union movements is to "inspire the Government" to pursue a proper employment policy and to protect workpeople against unnecessary encroachment on their freedom of action. Apparently, "workpeople" means members of the trade unions and does not include the owners or operators of basic industries whose "freedom of action" does not find so high a place in the regard of the T.U.C. That body also opposes a continuation of the direction of labour after the war, and would apparently substitute direction of industry.

Mr. Noel-Baker on Railway Control Agreement

We have pleasure in publishing on p. 349 some comments by Mr. P. J. Noel-Baker, Parliamentary Secretary to the Ministry of War Transport, on some of the more important points made in an editorial article in our issue of August 11 which dealt with his speech in the House of Commons on August 1. We appreciate his courtesy in commenting so fully on our article. As to paragraph 3, we feel that his comment thereon is more interesting than informative. So far as paragraph 4 is concerned, the phrase he actually used in the House is open to misconstruction seeing that, as the context of his speech shows, the £1,800,000 is earned outside the agreement and is not payable under it. The fact that Hansard twice incorrectly reported him answers the point raised by us in paragraph 5. As to the comments on paragraph 6, although railway stockholders generally may have been better off during the years of Government control than they were for a period of years before the war, it should not be overlooked that many millions of railway stockholders' capital is still dividendless despite their property having been used to a far greater extent than in any pre-war year.

Railway Agreement Pros and Cons

Some hold the view that, although a bargain is a bargain, any "security" the railway companies have obtained through the "Second Agreement" is now out of all relation to the advantages the Government has secured. In effect, this was the case which the railway chairmen put to the Minister of War Transport on April 20 when they said that the extension of the area of the war at the end of 1941 resulted in a far greater burden being thrown on the railways than was expected at the time the agreement was negotiated, and thus a reason for revision had arisen. On June 30, the Minister declared himself unable to accept this view (see our July 7 issue, pages 3 and 25). On the other hand, there are many who feel that railway stockholders might well have been required to accept the E.P.T. conditions of ordinary commercial undertakings (with the risk of a bad basic period), especially as wartime conditions demand

everything up to the greatest of all sacrifices, and loss of the war (or even a temporarily-successful German invasion) would have left the railway stockholders in a far worse position, without any reasonable possibility of compensation, let alone reward.

Overseas Railway Traffics

Some of the activity in securities of the British-owned railways in Argentina, which was caused by hopes of a change of heart in the Argentine Government due to the better price offered for the purchase of the Primitiva Gas Company, has slackened off and stocks generally have eased. Traffics of the four larger railway companies for the 12th and 13th weeks of the financial year have been good, except in the case of the Buenos Ayres Great Southern which have been £37,320 lower. Increases for the two weeks were £69,387 on the Central Argentine, £29,400 on the Buenos Ayres & Pacific, and £19,800 on the Buenos Ayres Western. Antofagasta receipts in the past three weeks have been in a downward direction, and the aggregate increase for the 39 weeks of 1944 is only £16,980. Brazilian railway traffics continue to improve and the Great Western to date is £213,800 up in receipts and the corresponding gain for the Leopoldina is £494,252.

	No. of week	Weekly traffics	Inc. or dec.	Aggregate traffic	Inc. or dec.
		£	£	£	£
Buenos Ayres & Pacific*	13th	118,200	+ 15,000	1,476,060	+ 319,440
Buenos Ayres Great Southern*	13th	139,860	– 26,640	2,121,180	+ 182,100
Buenos Ayres Western*	13th	65,520	+ 9,840	816,840	+ 156,480
Central Argentine*	13th	184,116	+ 36,411	2,250,612	+ 489,144
Canadian Pacific	39th	1,749,000	+ 48,800	47,590,600	+4,386,800

* Pesos converted at 16⅔ to £.

Although the aggregate gross earnings of £42,064,400 of the Canadian Pacific Railway for the first eight months of 1944 showed an increase of £4,118,400, the net earnings of £4,585,800 were £1,209,600 lower. This was because the expenses for August, 1944, were charged with the retractive proportion of the computed wages increase of £3,000,000 for the year.

Railways and Stock Exchanges

The railways have been responsible for many developments in this country, but one with which they are seldom credited is the formation of a number of the provincial Stock Exchanges. Mr. W. D. Mather, Chairman of the Sheffield Stock Exchange, which celebrated its centenary on October 4 last, points out in a recent article in *The Financial Times* that the provincial Stock Exchanges generally did not come into prominence until the railway boom of the 1840s. The earliest preserved Sheffield Share List, which is dated January 2, 1846, consists almost exclusively of railway stocks, and is divided into "Old Lines." "Lines in Progress," and "New Lines." After the collapse of the railway boom the industrial revolution continued to develop, and this was shown in Sheffield by the formation of iron and steel companies, which started in a small way but many of which have now grown into very large organisations. Many of the smaller concerns dropped out or were absorbed by amalgamation, but the leaders, such as Browns, Davys, Hadfields, Park Gates, Sheepbridge, Staveleys, and Vickers have kept their place and individuality, and have been quoted, and actively dealt in, for 60 or 70 years.

Steel in Wartime

A matter in which the steelmakers of Great Britain are entitled to congratulation is the high quality that they have maintained in their product notwithstanding the difficulties occasioned by five years of war. In the case of rails, for example, an average of tests, covering considerable tonnages, shows no decline in physical properties, as measured by the high percentages of elongation and reduction of area, relatively to breaking strength, that are still obtained in the tensile test. Bessemer acid steel manufacturers have doubtless been the more fortunate in this respect, as, given an assured supply of suitable ore, they work throughout with a high purity of raw materials, and are not subject, like the basic open-hearth steel manufacturers, to the vagaries of the scrap with which the furnace charge is diluted, and which cannot be controlled by careful selection to the degree that is possible in peacetime. From the scrap unwanted elements may pass into the steel which, though in minute quantities, can have a considerable influence on its physical properties, and it is very creditable to the steelmakers that they have surmounted the difficulties so caused with such success. In this they have undoubtedly received assistance from the medium manganese composition now standard in Great Britain for rails, for manganese imparts a toughness that helps to neutralise the embrittling effects of other elements. It has been necessary in wartime conditions to relax the limits of sulphur and phosphorus, but with the toughening assistance of manganese, it is quite possible that the increased phosphorus may even be an advantage in increasing wear capacity, given the safeguard of the higher manganese content with which it is associated.

Sunday Workmen's Trains in London

On Sunday last, October 8, the workmen's trains on Sundays heretofore operated by the London Passenger Transport Board were generally discontinued (as briefly announced in our September 29 issue), in view of the reduction in demand, and the continuing urgent need for economy in coal. The times of the first Sunday trains on all lines are now practically the same as before the war, excepting between Upminster and Aldgate East, and between Hammersmith and Uxbridge, where the early trains and services are continuing to be maintained until further notice. With the important exception of these workmen's trains, the winter railway services of London Transport, which came into force on Monday, October 2, are generally similar to those that have been in operation during the summer months, but there is an important exception that the evening peak hour services now begin slightly earlier in order to provide for an expected earlier homeward traffic in view of the blackout. This change is not without its effect on facilities used extensively by the passengers who occupy the workmen's trains in the morning. It is possible that some modification may become necessary as a result of experience, as fewer businesses are closing early this winter than in previous ones, and it will be interesting to see how this affects train services when London Transport has had the opportunity of assessing the trend quantitively.

Wartime Survivals of Train Names

In Great Britain two named trains alone have survived the timetable ravages of five years of war. One is the "Flying Scotsman" of the L.N.E.R., which still carries its "Flying Scotsman" headboards, and is dignified by the use of its name in timetables and on station timesheets. Also throughout the war it has maintained its timehonoured departures from Kings Cross and Edinburgh Waverley at 10 a.m. in each direction, except for a few weeks from the beginning of June onwards, when with the general train cancellations all the southbound morning traffic from Edinburgh was for this short time concentrated on the 10.15 a.m. departure. Although the wartime "Flying Scotsman" carries no through portions to and from points beyond Edinburgh, its stops remain much as usual, save that in the northbound direction Peterborough replaces Grantham, and in the southbound York is omitted. The other named train is the "Cornish Riviera Limited" of the Great Western Railway, which also carries its distinctive headboards, and is so indicated on the Paddington departure list, though the name is not now shown in the timetable columns. In all respects other than speed and the loss of its many through portions, the wartime "Limited" is a readily recognisable version of its peacetime self, still leaving London at 10.30 a.m., non-stop between Paddington and Exeter in each direction, and carrying no passengers from London for stations short of Plymouth.

A Story of the West Highland

The success which attended the publication by the L.N.E.R. of an historical brochure entitled "The First Railway in Norfolk," to mark a centenary, has encouraged the company to produce as a companion an even more pretentious volume called "The Story of the West Highland" (price 3s. 6d.). This will probably prove of even greater interest as it marks a jubilee (and not a centenary) and therefore deals with events which are entirely within living memory. Within the scope of 44 admirably-printed and well-illustrated pages, the anonymous author (whom it is safe to assume is Mr. George Dow) has contrived to pack a wealth of information in easily readable form, and to tell from the railway viewpoint how the railway transformed the West Highlands. The four chapters cover respectively an historical survey; the not inconsiderable engineering features; the locomotives; and the train services and other features. Folding-plate drawings are given of a typical island-platform station; of the gradient profile; and of first and third class saloon carriages built at Cowlairs for the West Highland Railway. There is also a tabulated statement of N.B.R. and L.N.E.R. locomotives used regularly on the West Highland line from 1894 to 1944, showing the principal dimensions as originally built. The publication of this booklet is a noteworthy achievement, and its contents should prove of permanent interest and reference value.

Modern Signalling in Spain

Comparatively little has been published concerning the signalling apparatus on the Spanish railways and on more than one occasion recently, writers in the Spanish technical press have referred to the lack of authoritative works on signalling in their language. Mechanical signalling equipment on the two chief railway systems was at first largely of French design and the signal aspects generally followed French practice, although here and there were semaphores resembling those used in England and some special forms were met with on one or two of the lesser-known lines. Key interlocking was much in evidence, again generally modelled on a French system. There were a few well-equipped power signal boxes of various designs at the larger stations. About 20 years ago automatic signalling began to attract attention and some sections of line were fitted with the best apparatus available. Some typical signal locations on the former M.Z.A. line are seen in the short article we publish on page 356.

Steps Back to Normal

The past few days have seen noteworthy developments on railways in the London area in the restoration at main-line termini and elsewhere of a better standard of lighting than has been enjoyed since September, 1939, and the work of improving train and station lighting elsewhere is proceeding apace, a step that should facilitate railway working and cheer the travelling public. Another step on the road back to normal was taken last Tuesday, when all emergency restrictions on the exhibition of place names came to an end throughout Great Britain.

The Future of Diesel Traction in India

UNDER lease-lend the United States is supplying between 30 and 40 diesel shunting locomotives to the railways in India, and it is expected that these will be brought into use within the next few months. Their behaviour in service will be watched with particular interest, for hitherto diesel traction has made very little progress in India so far as the railways are concerned, although there is a considerable number of diesel-engine buses in use, mostly in the large cities. There have been two attempts on the North Western Railway of India to introduce diesel locomotives, but both experiments were a failure, and, at present, the only diesel locomotive in use on any of the broad-gauge railways is a shunting unit on the Bombay, Baroda & Central India Railway. This locomotive, however, is reported as being very satisfactory in service. Diesel railcars are in use on the Madras & Southern Mahratta, North Western, and the Nizam's State Railways, but only those in use on the last-named railway are considered entirely satisfactory.

In America, diesel traction development has proceeded on the lines of providing diesel locomotives for spectacular fast services, which have been superimposed on the ordinary steam service. In India there is no demand for such services, as the number of first and second class passengers is very limited, with the result that, with few exceptions, all trains carry inter and third class passengers, and the upper class accommodation is limited to three or four coaches. In an article which appeared in the October issue of *The Railway Gazette, Diesel Railway Traction Supplement*, some of the factors which may weigh in effecting a decision as to the future use of diesel traction in India, are dealt with at length. Among these are coal and water supplies. It is pointed out that to 1940 the cost of first class coal in India was equal to about 5s. 3d. a ton at the pithead, but during the last few months it has risen to about 18s. a ton. It is expected that the coal price may be stabilised at about 12s. a ton at the pithead. First class coal from the Bengal and Bihar fields averages about 12,500 B.Th.U's a lb., but the ash content is higher than that of English coal; it is of the order of 15 per cent. Second class coal may have an ash content of between 20 and 25 per cent. India is a country of immense distances, and the freight is high on locomotive coal to railways remote from the fields. It is about 18s. a ton for the North Western Railway, and about 16s. 6d. for the railways running out of Bombay. The rise in the cost of coal may provide the necessary stimulus to the railways to experiment with diesel traction during the post-war period, always supposing that the price of diesel oil remains at about its pre-war level.

In some districts, notably the South West Punjab, Sind, and Baluchistan, the water supplies are precarious and, in many instances, the water is unsuitable, without treatment, for locomotive requirements. There are sections on the North Western Railway which are waterless for distances of 100 miles or more, and engines have to haul one to three additional tenders or travelling water tanks, which greatly reduces the pay load hauled by the engine. On the projected broad-gauge railway from Karachi to Bombay, the railway will skirt the Rann of Cutch, and it has been stated that for a distance of over 200 miles there is no water suitable for locomotive use.

The practice of describing diesel locomotives as of so much horsepower, using the figure of the continuous or one-hour rating of the diesel engine, has been held to be open to serious misconception and it has been suggested that diesel locomotives should be rated on their drawbar horsepower. As an illustration, it is stated that two diesel-electric locomotives were supplied to the North Western Railway some years ago and described as 1,300-h.p. locomotives. The main diesel engines were 1,200 h.p. (continuous rating), and there were also auxiliary engines of 130 h.p. Assuming that the generator efficiency was 88 per cent. and the traction motors 85 per cent., then the maximum horsepower available at the drawbar would be only 897 h.p., so that these two locomotives would more properly have been described as 900-h.p. locomotives.

The question of the rating of diesel locomotives as compared with steam locomotives does not appear to have been settled satisfactorily, and the best method of comparison might be on the basis of drawbar horsepower. In a paper on locomotive power recently published in the *Proceedings* of the Institution of Locomotive Engineers, the author gave curves of drawbar horsepower for two classes of locomotives in use on the Indian railways, and the maximum drawbar horsepower for the 4-6-0 type was 850 and 950 for the 4-6-2 type.

Two examples of sections of line in India on which diesel traction might be justified because of difficult track conditions may be cited. On the Bolan Pass section leading to Quetta the ruling gradient is 1 in 25, and heavy trains are handled by two bankers in addition to the train engine; all engines are of the 2-8-0 type. The distances involved, however, are comparatively short, and the water supply is reasonably good, and the traffic is normally not very intensive. The distance from the coalfields is about 1,600 miles, so that coal is expensive, and the distance from Karachi (from which oil is imported from the Persian Gulf) is about only 650 miles. On the East Indian Railway between Asansol and Gaya there is a section on the Grand Chord Line which is difficult because of heavy gradients and severe curves. The block sections are long, and extremely heavy mineral trains are handled (up to 2,400 tons trailing load). Bankers have to be used at one place. The block sections cannot be reduced in length, because if a train were stopped on a gradient, it could not restart without assistance. Because of the excessive time taken by the heavy mineral trains over the lengthy block sections, the capacity of the line is seriously reduced from what it would be if the goods trains could run at an average speed of, say, 25 m.p.h. This particular section of the railway runs to a capacity for many months each year, and if diesel locomotives could handle the traffic more expeditiously than the existing steam locomotives (and thereby increase the capacity of the line), they might be justified financially, even though the coalfields are on this section, and coal is therefore very cheap.

On the Indian broad-gauge railways there are many types of locomotives in use, but the following table gives brief particulars of the more important types:—

Locomotive	Wheel arrangement	Weight with tender tons	Tractive effort lb.
"XT" (pass.)	0-4-2	41·43 (tank)	11,088
"ST" (shunting) ...	0-6-2	55·15 (tank)	18,496
"SP" (pass.)	4-4-0	93·2	21,502
"SG" (goods)	0-6-0	90·15	25,872
"HP" (pass.)	4-6-0	118·05	22,591
"HG" (goods)	2-8-0	119·8	34,077
"XA" (pass.)	4-6-2	108·85	20,960
"XB" (pass.)	4-6-2	160·0	26,760
"XC" (pass.)	4-6-2	175·15	30,625
"XE" (goods)	2-8-2	199·0	48,086
"NI" (goods)	2-10 0	174·43	56,324

The "X" types of locomotives are the newest and these have been in use for about 15 years. The "HP" and "HG" locomotives have given excellent service since their introduction about 35 years ago. There are still hundreds of "SP" and "SG" engines in use, but they are mainly used for comparatively light trains on branch lines. The "XT" locomotive probably is the most economical engine in use on the Indian State Railways, as it has a comparatively high boiler pressure (210 lb.), high superheat (700° F.), and is fitted with Caprotti valve gear.

It is mainly used for fast passenger service on branch lines. The "XA" locomotive is a special design with low axle loading for running on branch lines, where light-section rails are in use. The "SP" and "SG" locomotives also can run on branch lines, but all the remaining classes can run only on main lines where heavy-section rails are laid.

All of the large locomotives on the Indian State Railways carry a crew of three, that is, a driver and two firemen, but the output of the engine is limited by the poor quality of the coal and also the low physique of the average Indian fireman. The "XE" engine, for instance, has a grate area of 60 sq. ft. and the physical effort, which is required to fire such a large grate effectively, is beyond the capacity of the firemen, especially as the average ambient temperature during the hot weather may be about 100° F. In the Punjab it is more, and is above 120° on certain sections during the daytime. The "NI" locomotive is oil fired and a few mechanical stokers—similar to those which are in almost universal use in America—are now being fitted to the larger types of locomotives.

Two sizes of engines might be sufficient for all purposes, namely, a 350 h.p. and a 1,000 h.p. (both continuously rated). The 350-h.p. diesel engine would be similar to those which are giving such successful service on British railways in the 0-6-0 shunting locomotives. The shunting engines would have the traction motors geared for a maximum speed of 20 m.p.h. and would be similar in all respects to those already in use in England except that they would be slightly heavier because of the larger gauge. The same engine fitted into a locomotive of double-bogie construction (to reduce the axle loading), would be able to equal (and possibly exceed) the performance of an "XT" passenger locomotive used on branch lines. In this case the traction motors would be geared for a maximum speed of 45/50 m.p.h., as most branch lines are certified for maximum speeds of about only 40 m.p.h. The 1,000-h.p. diesel engines would be fitted into suitable frames with 4-4-4 wheel arrangement for passenger locomotives (4 driven axles) and 2-8-2 for goods locomotives. The passenger locomotives would be geared for a maximum speed of 60 m.p.h. and the goods locomotives would be geared for a maximum speed of 30/35 m.p.h. The drawbar horse-power developed by each locomotive would be about 750 h.p. (allowing for an efficiency of 88 per cent. for the generator and 85 per cent. for the motors). This would be in excess of the power developed by the "SP" and "SG" locomotives as these can develop a maximum power of about 675 h.p. only and the diesel locomotives would be approximately half-way between the "SG" and "HG" classes. Specially heavy trains would be catered for by double heading (worked by one engine crew) as the locomotives would be arranged for multiple-unit control as standard. For heavy mineral trains on difficult sections, such as the Grand Chord section of the East Indian Railway, it would be feasible—if essential—to couple three engines and work them by one crew. Two diesel locomotives, however, would exceed the power output of an "XE" locomotive (the existing locomotives on the section) by about 20 per cent. A further measure of standardisation might be obtained by using the same size cylinders for both the 350-h.p. and the 1,000-h.p. locomotives. The 350-h.p. engines on the British railways have 6 cylinders, and it would appear possible to design a 16-cylinder V engine with similar pistons and to obtain 1,000 h.p. by increasing the speed slightly.

In India, where the standard of fitting in running sheds is generally rather low, it is essential to carry out maintenance at a central depot, where specially trained staff can be employed. Engines should be tested with their generators on tub loads and sealed before being sent out to sheds, and if trouble develops before the locomotive is due back for its periodic overhaul, then the complete power unit should be changed and the faulty unit returned to shops for repairs. Similar procedure would be necessary for the traction motors. Each shed on which diesel traction is based, would, therefore, require a very small specially-trained staff only for such work as periodic checking of fuel injectors, etc. All trains in India—both passenger and goods trains—are vacuum braked and there is no loose coupling of goods trains such as is the usual practice in England. Approximately 85 per cent. of the goods wagons are fitted with vacuum brakes and the remainder are piped. All diesel locomotives intended for use in India should therefore be fitted with vacuum exhausters which should preferably be driven by V-belts from the diesel engine crankshaft. It is also important that each exhauster should be fitted with duplicate air filters of adequate size so as to prevent dust being drawn into the interior of the exhauster.

A Lesson from the Coal Industry

THE increasingly serious position which has arisen in the coal mining industry is causing concern, not only among industrial and domestic consumers, but also in political circles. In our last week's issue we commented briefly on the poor coal outlook for the coming winter. According to Major Lloyd George, Minister of Fuel & Power, this is worse than at any time since the war. In the House of Commons on October 3 he stated that the increase of output which the Government was "entitled to expect from the wages agreement of April last" had not materialised and that since then output of coal had fallen materially. Output per man had fallen by 5 cwt. a week, mainly because of an increase of 25 per cent. in voluntary absenteeism. Although there had been no regional stoppages of work, there was still every week a large number of local and unofficial stoppages, and if the unsatisfactory rate of output continued; there would be a serious risk both of interference with the war effort and of hardship in many households. Subsequently, he pointed out that the fact that the highest rate of absenteeism was among the younger age groups did not bear out suggestions that increase in age and exhaustion of the men was responsible. On September 26 he had stated that the percentage of avoidable absenteeism in the coal mines during the 21 weeks ended September 9 was 5·7 as compared with 4·8 in the corresponding period in 1943. The difference in those percentages may appear small to those outside the coal industry, but, in fact, that difference represents an increase in avoidable absenteeism of 19 per cent. (on Major Lloyd George's own showing it is 25 per cent. since April) and the 5·7 per cent. means a loss to the nation of the order of 12,000,000 tons of coal a year. It is not without interest to note that 12,000,000 tons is four-fifths of the pre-war annual coal requirement of the four main-line British railways, which, in normal times, are among the largest customers of the coal mining industry, as well as the principal means by which the product of the pits is moved.

It is true to say that since the assumption of control of the coal industry by the Government, output has fallen and costs have been greatly increased. In June, 1942, when the Government White Paper was issued, containing its proposals covering both production and consumption of coal, and the organisation of the industry, it was announced that "with a view to ensuring maximum production to meet wartime needs, the responsible Minister will take full control over the operation of all coal mines and over the allocation of coal raised," and that, as a result of the measures which were described in the White Paper, "the Government looks to a substantial increase in output during the coming year." In fact, the contrary has occurred. For the eighteen months preceding the assumption of control by the Minister, that is from January, 1941, to June, 1942, the output of saleable coal was 307,144,500 tons; for the eighteen months from July, 1942, to December, 1943, it was 298,321,800 tons, a reduction of 8,822,700 tons. For the first twelve weeks of the current year, as compared with the similar period of last year, there was a further decline of 3,764,800 tons, and according to the most recent statement made by the Minister, output is now running below last year's level at the rate of 150,000 tons a week or 7,500,000 a year. These losses are cumulative.

Major Lloyd George seemed a little surprised that the increase in output, which the Government had been "entitled to expect" from the Wages Agreement of April last, had not materialised. That surprise will not be shared so universally as he seemed to expect. The experience of the last war and of the intervening years has shown quite conclusively that in the coal mining industry higher wages, as such, do not secure a higher output of coal. The tendency is in the opposite direction. The fact has to be faced that coal mining is an unpleasant and disliked occupation, and that in many districts voluntary absenteeism increases with improvements in wages. Two major objects of the scheme of the four-year stabilisation of wages scheme, which the Ministry persuaded owners and miners to accept last April, were to allay the fears of the miners about their post-war wage position, and to provide the coal face workers with a new and more effective incentive to production. Experience had shown that flat rate advances, by guaranteeing earnings irrespective of volume of production, had operated inimically to the interests of the industry and of the nation. The alternative principle was introduced of converting these flat rates (except that to compensate for the increased cost of living), amounting to 4s. 6d. per shift, into percentage additions to the earnings of piece-workers, which were thus brought nominally into more direct relation to output. It was estimated also that by the new

method of calculation, earnings would be increased by 3s. per shift for the same output. Adding together the cost of the Porter awards and of the Government's scheme for "overhauling the wage structure of the industry" it appears that the wages bill has been increased since January, 1944, by not less than £25,000,000 a year.

Consumers were committed to this additional expenditure with the promise of greater production. On the contrary, output is falling and costs are rising. There was a drop in production of over one million tons in the June quarter compared with the first three months of the year, and the provisional statistics since June gave no indication of improvement. Costs per ton are not only swollen by the Porter awards and the four-year wage stabilisation plan, but also by the incidence of the greater costs on a smaller output, and it is already becoming doubtful as to whether the Ministry will be able to keep the Coal Charges Order account solvent, even with the help of the 4s. increase in prices which became operative as from August 1.

The lesson of the coal industry seems to be clear—that the assumption of control by the Government has singularly failed to achieve the purposes for which it was intended. There can be no disputing the facts. Since control passed from colliery managements to the Minister, costs have risen, production has declined, and consumers have had to pay more for coal, often of poorer quality and more difficult to obtain. Political agitation and stoppages of work have continued to be a blight on the industry. The Ministry, not only armed with full legislative powers of control, but also fully aware that coal is an essential wartime raw material, has shown itself powerless to cope with the position. The condition of the coal industry at the present time is, indeed, a poor advertisement for those who advocate the nationalisation or State control of major industries.

Railway Control Agreement

IN our August 11 issue we published an editorial article dealing with a speech made by Mr. P. J. Noel-Baker, Parliamentary Secretary to the Ministry of War Transport, in the House of Commons on August 1. Sir John Mellor had raised, on the motion for the adjournment, certain points relating to the provision of the Railway Control Agreement. We have received from Mr. Noel-Baker the following comments on certain statements made in the editorial article, and these are reproduced below, side by side with the relative extracts from the article. (*See editorial note on page* 345).

Statement in Article	*Comment*
Paragraph 3	
"It would be very interesting to know precisely what new decision of major policy quite outside the agreement the Minister had in mind."	The Minister desired to reserve his position in relation to any unforeseen future development of transport policy generally.
"Apart from this point, the 'simple' explanation is rather difficult to understand in the light of the Railway Companies' Association letter of April 19, 1944, to the Minister, etc."	Whatever was said during the negotiations, the companies' acceptance of the fixed annual payment of the agreed amounts was for the period of control.
Paragraph 4	
"By an obvious slip he claimed that this (£40,000,000) was the total sum payable under the Agreement, whereas he should have referred to the figure of £38,200,000."	Mr. Noel-Baker said :— "Their net revenue under the Agreement is therefore £38,200,000, plus £1,800,000, a total of £40,000,000."
Paragraph 5	
"Mr. Noel-Baker claimed, however, that the only reasonable plan was to take the average net revenue of the last ten years before the war, namely, from 1929 to 1938, which was £34,000,000. Thus he alleged that the new agreement gave the companies £5,200,000 more than their average for the ten years, an increase of 15 per cent. Once again, his arithmetic is a little difficult to follow, as presumably he intended to compare the £34 millions with the figure of £40,000,000 he had previously mentioned."	Mr. Noel-Baker said :— "But the only reasonable plan is to take the average net revenue of the last ten years before the war, from 1929 to 1938; that average net revenue is £34,800,000 [reported as £34,000,000]." In other words our Agreement allows [reported as 'gives'] the four main-line companies £5,200,000 more than their average for the last ten years of peace—an increase of 15 per cent."
Paragraph 6	
"He did not, however, give any indication as to why he averaged railway earnings over ten years and dividends over four years only."	The choice of ten years as the period over which railway earnings were averaged was not that of the Parliamentary Secretary; it was the period from which a critic, who was being answered, had selected the two best years. Mr. Noel-Baker said :— "The critic, of course, had chosen for comparison, the two best years out of the last ten—the two years in which railway net revenue was highest, 1929 and 1937. If I followed his method and chose the two lowest years I could show that the present net revenues are nearly 37 per cent. above what the railways earned in those two years. But the only reasonable plan is to take the average net revenue of the last ten years before the war. . . ." Any comparison with pre-war is more realistic if the more recent years are taken. 1929 is now 15 years ago. When Mr. Noel-Baker was comparing dividends he was not answering any specific criticism and his choice was not conditioned by what had been said elsewhere. But whether 10 years or 4 years be taken for either earnings or dividends the result is the same—the railway stockholders have been better off during the years of Government control than they were before the war.

THE RAILWAY GAZETTE
READ WHEREVER THERE ARE RAILWAYS

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

North British Locomotives

"Broomwood," 46, Kenilworth Road,
Coventry. September 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I was most interested to read in today's issue of *The Railway Gazette* the letter to the Editor of *The Scotsman*, quoted in "The Scrap Heap," regarding North British Railway engines.

I should like to support J.R.M. in his suggestion that one of the Holmes "Greyhounds" of the N.B.R. be preserved, in its original colours, preferably at the Waverley Station, as a memento not only of the old N.B.R. but also as a tribute to the memory of the old employees of the N.B.R. who helped to build up one of the most important constituent companies of the L.N.E.R.

May I also through your columns make an especial plea to the L.N.E.R. to perpetuate the grand Scottish names of the Reid N.B.R. "Atlantics" when building locomotives for use in the Scottish area, and also to keep in mind the names of the "Glens" and the "Scotts" when the time for the scrapping of these locomotives arrives. It would be a Scottish disaster if the old N.B.R. flavour was allowed to disappear from the L.N.E.R.

Yours faithfully,
T. W. I. BELL

The Maidstone Train Service in the Past

60A, Green Lane, Northwood,
Middlesex. September 30

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The train service between London and Maidstone since 1875, that is soon after the London Chatham & Dover Railway had reached the town to compete with the South Eastern Railway, is interesting in retrospect.

In June, 1875, the best train between Maidstone and Cannon Street, S.E.R., was 70 min. up and 76 min. down, and between Maidstone and Ludgate Hill, L.C.D.R., 77 min. up and 76 min. down, but as years went on both companies decelerated their trains. In the summer of 1894 the L.C.D.R. put on an excellent morning train taking only 63 min. from Maidstone to St. Pauls, and a return evening train, not so good, taking 72 min. The up train ran to St. Pauls with one stop only (Sevenoaks) and slipped the Victoria carriages at Herne Hill. Of course, in those days it had to run into Sevenoaks (Bat & Ball) and reverse; 2 min. was allowed in the working timetables for the summer of 1894. After three months, the down train was taken off and the up train was gradually decelerated, so that by 1898, with frequent stops, it took 78 min. on the journey.

As pointed out by the Mayor of Maidstone in his speech at the centenary luncheon, reported in your issue of September 29, things improved in 1899, and in June of that year a train was put on that ran non-stop from St. Pauls to Maidstone in 53 min., this train used the re-opened Otford loop, avoiding Sevenoaks; there was no corresponding up express. The South Eastern & Chatham Railway in the summer of 1903 provided an express both up and down taking under the hour:—

Maidstone dep. 10 a.m.	Victoria dep. 5 p.m.
Victoria arr. 10.55	Maidstone arr. 5.59

These trains with slight variations, though still under the hour, ran till the European war of 1914 began. Presumably electric traction can do as well.

Yours faithfully,
REGINALD B. FELLOWS

Railways' Expenditure on Research

London, N.W.3. October 1

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The article in your October 6 issue gave a useful summary of the steps which the railway companies have taken to keep their equipment and methods of working up to date. It is gratifying to see that progress has been made in many directions, but I am doubtful whether the replanning of locomotive and train schedules has effected as large an economy as the article suggests. We are told that "the miles run per steam locomotive a year increased from 22,512 in 1923 to 27,210 in 1938, or by 21 per cent." An accompanying table shows that the four main-line companies had 23,879 steam locomotives in 1923 and only 19,577 in 1938. That is not the whole story. In 1923 no less than 3,894 engines, or 16 per cent. of the total stock, were unserviceable. By 1938 the number of engines under or awaiting repair was less than 1,200 or about 6 per cent. of the stock. When we take the numbers of serviceable engines in the two years, the increase in the miles run by the average locomotive in a year is just about halved. It would appear that many of the old engines passed to the amalgamated companies were in poor order and did little work, though the total stock was not reduced substantially until 1930.

Another point which strikes one on studying the table is that the engine mileage run in 1937 was the largest in any year, though passenger traffic was below the level of 1923 and less freight moved than in either 1923 or 1929; further, the passenger train mileage worked by electric train traction was growing steadily up to 1938 and displacing steam mileage. It would be interesting to hear what the "replanners" have to say in explanation.

Again, the engine mileage for the war years is surprisingly low in view of all that has been said about the heavy occupation of the lines during the past five years. The publication of a solitary statistical table merely whets one's appetite for more figures, so that a true picture of the railway position can be formed. Your article in the same number on "Statistics of U.S.A. Railways" shows that the American public has full details about the performance of its railways and there can no longer be any reason for keeping our railway results secret.

Yours faithfully,
STATISTICIAN

Publications Received

British Railways Facts and Figures. London: Issued by the British railways and London Transport. 6½ in. x 4 in. Gratis.—This booklet published by the four main-line railway companies and the London Passenger Transport Board contains a great number of interesting data relating to the undertakings. All the facts are arranged alphabetically to facilitate reference, and three of the sixteen pages are devoted to a chronological table of outstanding events from the time of the first public railway in 1825. A glossary of railway terms is included, as well as a diagrammatic illustration of statistics for 1943 compared with pre-war. Among the information given in the booklet is that 130,000 railwaymen are fully trained in Civil Defence work, that line-side allotments cover 4,282 acres, that 10,358 signal boxes are daily signalling trains to victory, that 17 railway sleepers weigh a ton, that 3,782,000,000 passengers a year are carried by London Transport, and that during the fifteen years before the war the railways expended £7,000,000 on steamship development. Railway finance and statistics are dealt with in a folder inserted in the booklet.

Post-War Industrial Reconstruction, as viewed by the Internal Combustion Engine Manufacturers' Association.—This publication has been received from the above-mentioned Association, the address of which is 32, Victoria Street, London, S.W.1. It recalls the chaos occasioned in the industry after the last war, by the haphazard methods adopted for the disposal of equipment no longer needed for the prosecution of the war. It is suggested that, after the present war, surplus government engines and spares should in the first instance be supplied to the devastated countries on whatever basis is agreed among the United Nations. Of the remainder, some should be kept in reserve by the Government to meet a possible future emergency, some should be allocated to educational establishments engaged in training engineers, and the "balance could then be taken over by an organisation representative of the industry and the Government to be disposed of by it in the way best calculated to promote national development and least likely to affect injuriously employment in the industry." In this way, it is thought that an opportunity would be provided for reconditioning equipment that needed it, and for scrapping equipment that could not be made serviceable.

The Story of the West Highland.—Published by the Press Relations Office, L.N.E.R. 8½ in. × 5½ in. 44 pp. + folding plates. Illustrated. Price 3s. 6d.—A welcome addition to railway literature is this historical and descriptive brochure, published officially by the London & North Eastern Railway in connection with the fiftieth anniversary of opening of the first section of the West Highland Railway. The anonymous author (probably Mr. George Dow) has divided his work into four chapters covering respectively the history of the system, its extensive engineering features, its locomotives, and its train services. We refer to this in an editorial note, page 346, in which special mention is made of the excellent folding-plate drawings that are a feature of the brochure. The illustrations and style of production are admirable, and the price is modest in present circumstances.

The Scrap Heap

LIVING ON TAXES

In certain of the coalfields we are told it is the practice of miners to work two weeks and abstain for the third week, for which they secure a refund of income tax.

* * *

INDUSTRY AND SOCIAL INSURANCE

As may be within the knowledge of some, I am at all times anxious for the welfare of people. I welcome, therefore, in general principle, the Government's latest proposals for security for all.

We must remember, however, that they have to be paid for. As industry will have to make the money to pay the bill, I hope they will soon be given their long overdue freedom to prepare for, and to go out and get, the orders, otherwise I see no security for anyone.—*Sir Bernard Docker in a letter to "The Times"*

* * *

Railway staffs in Great Britain have contributed nearly £350,000 in pennies to the Red Cross Penny-a-Week Fund. Totals for the four groups are as follows: G.W.R., £44,500; L.M.S.R., £136,200; L.N.E.R., £130,900; and Southern Railway, £38,000.

* * *

Southey tells me of what must prove a severe frost upon literature—the alarming scarcity of *paper*; that not more than a six months' consumption is in the nation, and no prospect of securing the rags from the Continent of which it has ever yet been made. This is *another* mischief added to the countless number of this destructive, this detestable, War.—*Anna Seward to Sir Walter Scott on April* 25, 1808.

Special trains are now being run to the Miranda Concentration Camp for the conveyance of German deserters and refugees from the Franco-Spanish border zone, according to a Barcelona report.

* * *

Some of the following types of aircraft might well be commemorated in future locomotive naming :—

Albacore	Flamingo	Proctor
Albatross	Fulmar	Puss Moth
Albemarle	Gauntlet	Roc
Anson	Gladiator	Seafire
Auster	Halifax	Sea Otter
Autogiro	Hamilcar	Shark
Barracuda	Hannibal	Skua
Battle	Heston Phœnix	Spitfire
Beaufighter	Hornet Moth	Stirling
Beaufort	Horsa	Swordfish
Blenheim	Hotspur	Tempest
Bisley	Hurricane	Typhoon
Botha	Lancaster	Tiger Moth
Comet	Lysander	Walrus
Cygnet	Manchester	Warwick
Defiant	Martinet	Wellesley
Dominie	Mentor	Wellington
Dragon	Mosquito	Whirlwind
Dragonfly	Moth Minor	Whitley
Ensign	Owlet	York

* * *

WELDED RAILS 50 YEARS AGO

On the advent of the electric welding a very obvious application of it seemed to lie in the welding of rail joints. . . . The electric street car companies have shown a disposition to adopt welded joints, not only to secure a continuity of track for mechanical reasons, but for electrical ones also. As the track is used for the return current, it is obvious that its conductivity should be as high as possible, and such conductivity is evidently favoured by welding the joints together. . . . One form of the welding machine . . . consists of a Thomson welding machine of special construction arranged to be carried on a crane projecting from a construction car. . . . The operation is so perfect that after the welding is done and the ground is filled to its level, it is almost impossible to tell where the weld has been completed.—*From the "Scientific American" of August*, 1894.

* * *

On the recommendation of the French Minister of Public Works, the railway companies are considering the practicability of giving second and third class passengers the comfort of hot-water tubes, which have hitherto only been the privilege of first-class carriages. The Lyons Company is the first to adopt the more liberal system, and will shortly make a trial of it on the line from Paris to Montereau.—*From "The Illustrated London News" of November* 17, 1860.

* * *

The long-suffering British-owned Argentine railways suffered a double misfortune recently when a train of the Central Argentine Railway ran over a bigamist named Francisco Teixeira and killed him. Both "widows" claimed damages from the company. The first wife, whom Teixeira married in Portugal, asked 40,000 pesos (about £2,500), and the second wife, married in Argentina, claimed 30,000 (£1,870). The courts granted 8,000 pesos compensation to each woman, the real widow and the other.—*From "The Times."*

* * *

THE DOG HAD A SEAT

All the way from Euston to Holyhead, on the packed Irish Mail, many passengers had to stand. But in one compartment, it was stated by an L.M.S.R. official at Crewe, a large Dalmatian dog occupied a seat, and it sat there for the whole 260 miles.

When its owner, Mrs. G. Richards, of Goodge Place, London, W., was asked by officials and passengers to remove it, she refused, even for a first class passenger seeking a third class seat. Mrs. Richards was fined the maximum of £2 with £7 17s. costs, for allowing the dog to remain in a passenger coach.

* * *

The Missouri-Kansas-Texas Railroad of the U.S.A., after having "beaten the bushes" to obtain sufficient labour for its heavy rail-relaying programme, finally has appealed to Red Indians along its territory, especially in Oklahoma, and with considerable success. The company's payroll now includes such names as Sapsucker Mouse, Leaf Leaf, Tin Cup Six, Watt Hogshootem, Dave Creek Killer, Blue Six, Hugh Goingsnake, George Bigfeather, and John Lee on the Hill.

* * *

TAILPIECE

(Improved lighting has been installed at the London termini)

As war recedes and one by one
The old amenities return,
The blackout lifts, the gloom is gone,
And London's lights begin to burn,
The station lights, the lights we knew,
They wax in power as day is done.
There is a glow at Waterloo,
The lamps are up at Paddington.

Not yet, maybe, the battle's close,
The cease-fire and the silent drum,
But this illumination shows
The very shape of things to come.
At Kings Cross is the glow we knew,
At Euston now the lights are on,
The lamps are up at Waterloo,
The platforms bright at Paddington.

E. C.

Signal Arms After a Flying Bomb

The effect of blast on signal arms at West Croydon Station, Southern Railway, after a flying bomb attack

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

AUSTRALIA

Strategic Importance of Railways

In a recent broadcast address from Sydney, Lt.-General H. Gordon Bennett said that the strategic importance of railways was greater than ever, in spite of the development of road transport. The increase in the use of mechanical transport on the roads, in fact, had added to the importance of rail transport. Before mechanisation, it had been considered that an army could operate only 75 miles ahead of its railhead; and one would have thought that, with mechanisation, that limit would have been extended indefinitely; but that was not so. Modern armies needed such vast quantities of supplies that the roads tended to become congested, with the result that greater reliance than ever had to be placed on railways. Moreover, only specially-constructed first class roads would stand the strain of modern war traffic.

SOUTH AFRICA

Record Coal Movement

To meet the great demands of the United Nations, the mines of Witbank have produced millions of tons of coal above the normal requirements of the country; and the movement of this traffic has made heavy demands on railway personnel, rolling stock, and locomotive power. With 10,000 employees on full-time military service, and with increasing demands on motive power and rolling stock, the accomplishments of the Administration's servants have called forth repeated expressions of gratitude and appreciation from the Minister of Transport and the General Manager of Railways. During the week ended July 9 last a new record for the South African Railways was set up with the movement of 285,249 tons from Witbank to Germiston. The previous record was one of 271,927 tons, transported during the week ended August 22, 1943. In establishing the new record 233 trains were operated; the traffic peak was reached during the 24 hours ended at midnight on July 7, when 44 trains carried 55,176 tons. These figures, of course, relate to traffic in the one direction (Witbank to Germiston).

Railway Labour Policy

Mr. F. C. Sturrock, Minister of Transport, recently stated that the present manpower shortage in the Union was making it difficult for the Railway Administration to give full effect to its white-labour policy. Employees were needed urgently in various sections of the railways, but as efforts to recruit sufficient Europeans had failed non-Europeans had had to be engaged. On the transportation side alone it had been found necessary to engage some 3,000 native labourers because the war had made Europeans unavailable. Such emergency measures did not represent a departure from the fixed policy of the Government; the additional non-European labourers were being employed on work which could neither be left undone nor postponed. Every effort had been made to recruit European labour, and System managers had been instructed to tap every source.

The Minister pointed out that to a considerable extent the present labour problems could be traced directly to the Union's increasing prosperity during the last four years, which had produced, and expanded old fields of employment in commerce, industry, mining, and Government service. As the rural areas no longer were available as European labour reserves, the railways had had to tap other sources. Of those, the non-European was the most promising and responsive.

It would be possible, of course, Mr. Sturrock said, to import European labour and thus satisfy the repeated requests to the railways to employ only Europeans; but the Government did not consider the import of labour a desirable expedient. Many statements made about the employment policy of the railways were fallacious. For instance, although non-Europeans employed by the railways had increased by 62 per cent. during the period 1934-38, the increase from 1941-43 had been only 9·7 per cent. During the latter period Europeans employed by the railways had increased by 11·6 per cent.

UNITED STATES

Burlington Diesel Maintenance

The increase in diesel-electric operation on U.S.A. railways is seen in the heavy expenditure now in progress, or planned, for the extension of special servicing facilities for diesel-electric locomotives. For example, the Chicago, Burlington & Quincy Railroad, which recently added sixteen 5,400-b.h.p. quadruple-unit freight diesels to its already large passenger and shunting diesel fleet, has obtained sanction from the War Production Board to spend a total of $1,650,000 on enlarging its passenger diesel maintenance and repair shop, and on building a freight diesel repair shop, at Chicago ($700,000); on new facilities for maintaining freight diesels at Denver, Colorado ($500,000); and on the conversion of part of the steam locomotive shop at Burlington, Iowa, for diesel maintenance ($450,000).

More C.T.C. on the Burlington

An important addition to the centralised traffic-control over its main line from Chicago to Denver, which carries the "Denver Zephyr" streamliner and other fast trains, is being made by the Chicago, Burlington & Quincy Railroad. This is to be installed over the 228 miles of single track between Lincoln and McCook, Nebraska, at a cost of approximately $2,000,000. When this is complete, c.t.c. will be in operation continuously over the 483 miles between Lincoln and Denver, with the exception of one 142-mile stretch.

Flood Damage to Railways

From May 19 to 21 heavy rain in Iowa caused several minor washouts, and two trains were derailed in consequence. One of these was the "Rocky Mountain Rocket" diesel streamliner of the Chicago, Rock Island & Pacific Railway, and the other was a local passenger train of the same company. Two Rock Island trains were diverted over the tracks of Chicago, Burlington & Quincy Railroad. The Chicago & North Western Railway was affected in the neighbourhood of Arnes and Nevada, and had to detour its main-line trains over the Chicago, Milwaukee, St. Paul & Pacific Railroad between Tama and Council Bluffs; trains for Kansas City of the Chicago Great Western Railway similarly had to use Milwaukee tracks. All the affected lines were restored to traffic by May 22.

Exactly a month earlier there had been similar trouble in eastern Kansas and west-central Missouri, arising from high water in the tributaries of the Missouri and North Arkansas Rivers, after heavy rains on April 22 and 23. No bridges were damaged, but several railways suffered badly from washouts. The Atchison, Topeka & Santa Fe Railway system had its main line breached at Holliday, and its line from Kansas City to Topeka at Lawrence, both in Kansas, as well as two other routes. The Santa Fe, Rock Island, Missouri Pacific, and St. Louis—San Francisco systems were affected by high water in the North Arkansas River at Wichita, Kansas. The double-track main line of the Union Pacific Railroad west of Kansas City, used also by the Rock Island, was washed out at Lenape, Kansas, on April 24, and traffic was resumed, on one track only, two days later, after a 19-panel pile trestle viaduct had been built. The Missouri-Kansas-Texas Railroad was affected between Kansas City and Parsons, and the Missouri Pacific Railroad between Kansas City and Ossawatomie. The Alton Railroad had 650 ft. of an embankment 60 ft. high washed out, at Glasgow, Missouri, on its main line to Kansas City. The Chicago, Burlington & Quincy Railroad had to discontinue work in its North St. Louis yards on April 26, when flood level of the Missouri River was 37 ft. above normal. Most of the breached sections of line had been restored before the end of April.

SWITZERLAND

Railway Instruction in Schools

Arrangements are being made to interest the senior pupils of Swiss secondary schools in the railways of their country. At a meeting held recently in the main station at Zürich, attended by a number of schoolmasters, a representative of the Federal Railways gave a typical lesson, illustrated by lantern slides and films, showing how matters of railway interest would be presented to scholars. As a result, the schoolmasters declared themselves ready to give a much more prominent place than previously, in their general civic instruction, to railway matters. So far as concerns Zürich, the lessons for the schools, which will be given by specially qualified persons, will be organised at the Central Station. It may be recalled that a teacher in a primary school at Zürich also recently introduced a series of lessons dealing with the Federal Railways (see *The Railway Gazette* of June 2 last).

SWEDEN

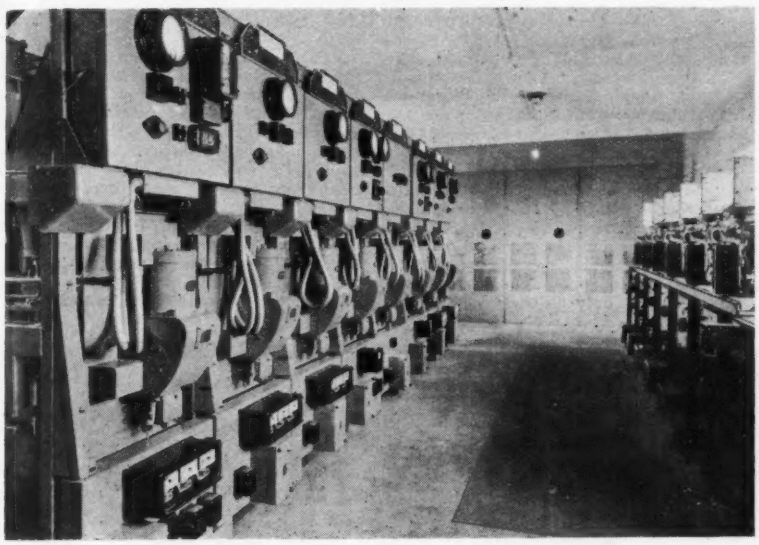
Railway Results for January-June

Combined earnings from railway traffic of all the private railway companies in Sweden for the first six months of this year amounted to kr. 78·1 million, compared with kr. 77·9 million for the corresponding period of 1943. Railway working expenditure during the same period amounted to kr. 59·8 million (kr. 57·4 millions) and, after deductions for taxes, interest and writings-off, the net profit for January-June inclusive was kr. 6·7 million, compared with kr. 9·3 million during the corresponding period of 1943.

The gross profit of the State Railways for January-June inclusive amounted to kr. 265 million, or kr. 10 million more than in 1943; and the net profit was kr. 45 million, compared with kr. 48 million for January-June, 1943.

Wirral Lines Electrification, L.M.S.R.—II

*Extracts from Mr. C. E. Fairburn's paper before the Railway Engineering Division of the Institution of Civil Engineers**



FOR the Wirral lines electrification, the supply is received at 11 kilovolts, and this pressure was retained for the distribution feeders to the substations, 6 in number, which are single-unit remote-supervisory-controlled glass-bulb rectifier installations. Experience with glass-bulb rectifiers for traction duty (dating from 1932 on the Liverpool-Southport Line, and 1934 on the Manchester-Bury Line) showed that they were technically satisfactory for use in single-unit sub-stations. The sub-stations have to meet a varying load; for instance, current peaks exceeding 2,000 amperes, that is five times the average output, were obtained at one sub-station during a recent period of observation. The life of the glass-bulbs was at one time considered a rather uncertain factor, but experience has shown that they can be expected to have a long life; a number of bulbs on the company's lines has now exceeded 80,000 hours' burning life. The Wirral rectifier equipments are rated at 600 kilowatts nominal capacity. The bulbs are 48½ in. high overall and weigh 100 lb. The cubicles were made large enough to accommodate larger bulbs if at any time an increase in load should make this necessary. The rectifier breakers are rated nominally at 1,200 amperes and the feeder breakers at 800 amperes, but their dimensions are identical. The accompanying illustration shows the interior of Birkenhead North Sub-station, with the high tension switch gear on the left, the track feeder circuit breakers on the right, and the rectifier equipment in the background. Thanks are due to the Hewittic Electric Co. Ltd., the maker of the rectifier equipment, for this illustration. It is of interest to note that during the period of enemy activity over the district, numerous bombs fell near to the sub-stations; one fell only 40 ft. away, and blast burst open the doors and windows, but the glass-bulbs of the rectifiers were not damaged. It seems evident, therefore, that this type of equipment is not so vulnerable as was sometimes feared before experience was available.

Power is brought to the sub-stations by overhead lines which, however, are terminated at the sub-stations in cable sections at least 50 yards long, to reduce surge voltages due to lightning before they enter the high-tension switchgear. Due to the proximity of the sea, and the consequent danger of salt deposits seriously reducing the flash-over voltage, the overhead line insulators are made considerably larger than is usual for 11 kilovolts; they are, in fact, of a special anti-dirt type, having electrical characteristics equivalent to 30-kilovolt insulators. In general, the clearance between the nearest power wire and the telephone and telegraph lines on the other side of the track is 35 ft., but in some places it is only 30 ft. For the length of line involved, these distances have proved adequate for the avoidance of interference on the communication circuits.

The control room is attached to Birkenhead North sub-station; the control equipment is a development from that employed in automatic telephone exchange work; it enables a variety of operations to be performed over a minimum of small section wires of the telephone variety. Over the same wires, sub-station meter readings can be made to repeat in the control room.

The erection of the third rail was carried out after considering the various problems involved in the light of existing experience. Considerable use was made of welding, and new standard components were designed for eventual use wherever the 650-volt conductor rail is employed. Special attention was paid to the problems of thermal expansion and rail creep. As an initial experiment, five sections of rail were welded into a single length of 100 yd. Since then, longer lengths have been formed, one of which, of 600 yd., is situated on a curve of 50-ch. radius. The expansion joints at the ends of the earlier continuous lengths were made by cutting the rails at 30° and slotting the holes for the fishplate bolts, thus permitting 2-in. longitudinal movement. These joints have proved satisfactory so far, but they may require rather careful maintenance when wear has occurred. Moreover, they do not permit sufficient movement for the lengths of rail now being welded, and although a type capable of giving the necessary movement might be produced, it is thought preferable to avoid expansion joints altogether. This has been done where possible by selecting for welding lengths of rail which terminate in existing gaps. In other cases, lengths of rail have been broken up by introducing gaps about 2 ft. in length, which are bridged by a short jumper cable.

A jig has been made for holding conductor rails when welding them together; this enables all the welding to be done from above, thus avoiding the necessity for turning the rail over during the process. The head and foot of each rail are cut back at about 45° so that, when the ends are placed together, inverted triangular fillets of metal can be deposited. Continuous lengths of about 100 yd. are formed at the side of the track and are then lifted in position on insulators before being welded into the final lengths required. The rail shows some distortion at the weld on cooling, which tends to cause depression at the joint, but this is

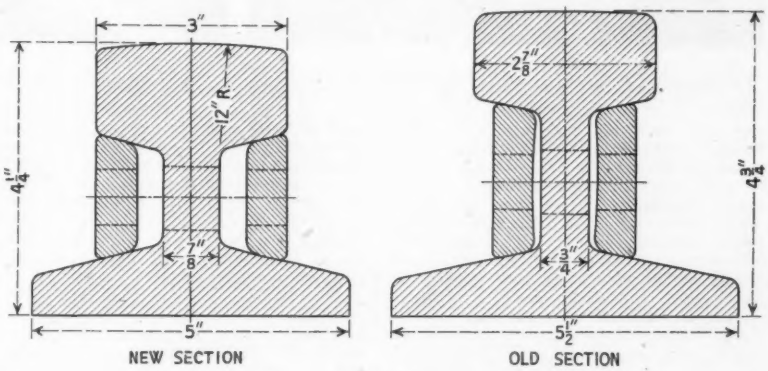


Diagram of conductor rail sections

* The first part of this summary appeared in our issue for September 22

countered by setting the rails at a slight angle in the jig.

If conductor rail creepage is not prevented, it becomes necessary to move cable connections from time to time, and finally to move whole sections of rail back to their original positions. On the Wirral lines anchorage points are provided at regular intervals. On sections where expansion is permitted at every joint, such points are provided at intervals of three rails, and where continuous sections are used, several anchorage points are installed near the middle of the length, for example, on lengths ranging from 300 to 600 yd., five anchor insulators are mounted on alternate sleepers. Rail movement is limited by stops on the rail itself; these stops engage on either side of the insulators which have mountings designed to resist the longitudinal forces set up.

The conductor rail is mounted in the standard position prescribed by the Minister of Transport; it weighs 107 lb. per yd. and its resistance, including bonds, is 0·0264 ohms per mile. The diagram on page 353 shows the section of rail used in comparison with the old standard form. The change in section was made in order to reduce the surface exposed to corrosive action. Opportunity was taken to make the "fishing" angle between the top and bottom flanges less acute, and to arrange that the fishplates should fit farther from the rail-web, in order to prevent worn plates from bearing against the web. The fishplate length has been increased from 8 to 10 in. as the shorter plates showed some tendency to bite into the rails and so prevent longitudinal movement. Fixing is by means of two bolts.

Toughened glass insulators have been tried and found satisfactory, so that they are being used in greater numbers. Used as an anchor, the glass insulator can withstand a horizontal load up to 3½ tons as compared with only 1½ tons for the porcelain insulator. As to ordinary support insulators there is not much difference; both glass and porcelain types can withstand a load of 13½ tons, the limit to which testing has been carried.

Oxy-acetylene welding has been used not only for joining conductor rails, but also for most of the detail work on the track supply, including the attachment of running and conductor rail bonds, cross track bonds, terminal blocks, and so on. One of the accompanying illustrations shows the connections to the running rails adjacent to a sub-station. The cables are protected by a wood trough and are joined to the rails by a welded-on spider connector. The cable lug can be seen projecting from the trough in the foreground. Another illustration shows connections to the conductor rails outside the sub-station by means of welded-on terminal blocks. The standard porcelain support insulator can also be seen; the box protects a track switch.

Rail bonds are made from stranded copper; those for the running rails are welded to the rail-head and those for the conductor rails are welded to the foot of the rail. In comparison with earlier pressed-in bonds, the new type saves a great deal of copper. Thus, for a running-rail bond, only 9 oz. of copper is used as compared with 6½ lb.; for a conductor rail 3 lb. is used instead of 10 lb. There is no appreciable difference in electrical resistance. The track cross bonds are also of stranded copper; they occur every 220 yd., and all four rails are bonded together every 440 yd., except where modifications are made to free a rail for track circuiting.

The results of more than five years' operation of the electrical services were summarised in a preliminary abstract of this paper which appeared in our November 12, 1943, issue, page 482. However, the following running experiences are worth adding.

On the trains the layout of the braking system follows established practice, but the rigging is so arranged that the brake pressure can be adjusted by altering the leverage exerted. This arrangement was adopted so that either cast-iron or non-metallic brake blocks could be used at will; the lower pressure was originally needed with the non-metallic blocks owing to their higher coefficient of friction. However, in case they are required, non-metallic blocks having approximately the same coefficient as cast-iron are now becoming available. In a six-car electric train, on a typical suburban service, the use of cast-iron shoes leads to the dissipation of about 6 tons of cast-iron a year. The resultant metallic dust is detrimental to electrical equipment and paint work. Non-metallic brake shoes offer an improvement; the cost per shoe is increased about three times, but the life is longer, about double, according to experience on the Wirral lines. The tyre life between turnings is increased by from 50 to 100 per cent.

Rolling-stock axles are fitted with bearings which have parallel rollers and thrust pads to limit side play. In some instances, these roller bearings have suffered electrical damage. On the third-rail system the return current normally finds its way to the road wheels through the axlebox bearings or the motor suspension bearings, or both. Probably most of the current passes through the motor suspension bearings, which present a path of lower resistance, but when a fault occurs the proportion of the current passing through the axlebox may be sufficient to cause damage. On the Wirral stock, an attempt to ameliorate the position was made by fitting earthing brushes to the axles of the motor bogies, but it is obviously very difficult to provide a path of sufficiently low resistance to effect complete protection. Fortunately, the number of bearings damaged is not serious; the most frequent cause is the shorting of shoe connectors to the bogie when ice or snow is present on the conductor rail.

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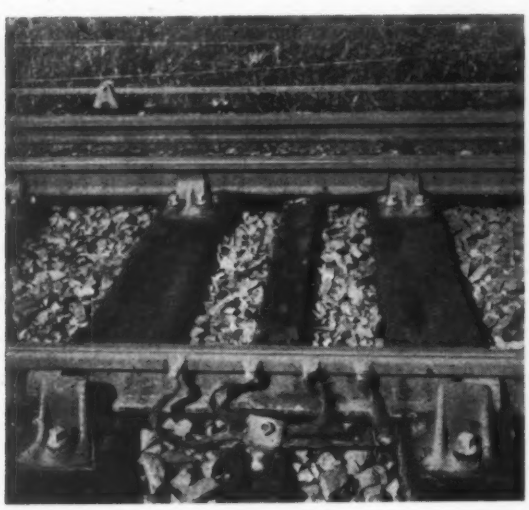
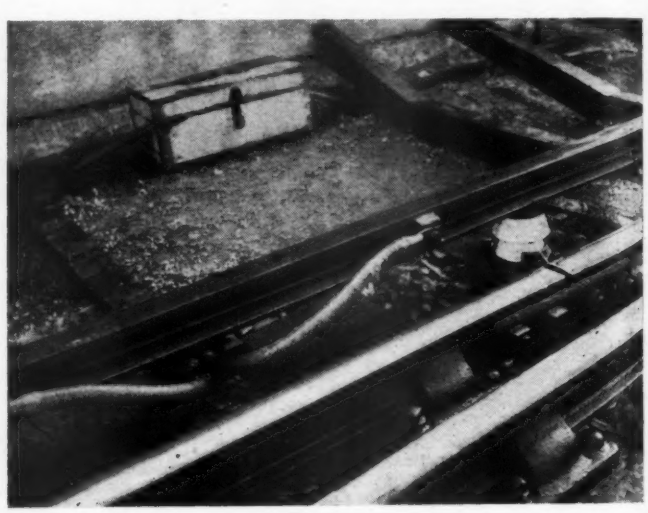


Connections to running rails adjacent to sub-station



Connection to conductor rail adjacent to sub-station

VEGETABLE RUBBER PRODUCTION IN ARGENTINA.—In an attempt to solve the present problem of the shortage of crude rubber, the Argentine Minister of Agriculture has signed a Decree creating the Corporation for Production of Vegetable Rubber. The Decree states that the cultivation of rubber, which was started by the Ministry of Agriculture some time ago in the provinces of Salta, Catamarca, San Juan and Mendoza, is giving already excellent results, and that, consequently, it has been thought convenient to organise a department and to appropriate the necessary funds for this work, which is to be developed with a view eventually to making Argentina self-supporting.

Strain Gauging for Railway Engineering

Modern aircraft methods which may be applied in railway workshops

The modern method of measuring steady and alternating stresses, particularly as applied to aircraft structures, is of great potential interest to railway engineers as a convenient and very accurate means of investigating the failure of rolling stock and all moving parts, loads on rails, cross-overs, and so forth. The exact knowledge of stresses in various members is also of importance in the consideration of new materials, such as light alloys, metal-reinforced wood, and plastics, for carriage building. In addition, strain gauging may be applied with every chance of success to the diagnosis of failures in presses, machine tools, etc., used for the fabrication of metal parts in railway engineering shops.

The latest method of strain gauging makes use of the wire-wound resistance gauge, which depends for its action on the fact that a stress applied to the gauge causes a small change in its resistance. This type of gauge is an improvement on the old carbon type, which was suitable only for the measurement of alternating stresses up to 0·0007 in. strain, or even the Carbon-Bakelite gauge which was developed for use up to strains beyond 0·004 in. The new nickel-chrome wire gauge has a diameter of 0·001 in. and is enamel covered. It is made by winding the wire on to a paper-covered mandrel, removing the paper tube, and then squashing the coil flat. The tail leads are then welded on the gauge which is covered with paper for mechanical protection.

Normally, cellulose-acetate cement is used for attaching the wire-wound gauge to the metal or other surface to be tested and this adhesive can be used only where the temperature range does not exceed 80° C. Recently, a new cement has been used which enables the gauge to be operated up to a temperature of 200° C., but its use entails polymerisation on the metal, preferably by heat from infra-red lamps.

To determine alternating and steady stresses it is now possible to use the same type and resistance value of gauge, and also the same equipment. Normally, steady stress measurements are made using a wire-wound gauge in a Wheatstone Bridge circuit and detecting the "out of balance" current, and hence stress, by means of a sensitive galvanometer with a light, mirror and scale. This method is not very suitable for rail tests run at high speeds, and moreover requires the use of a low resistance gauge, as opposed to the use of a high resistance gauge for alternating stress measurement with the usual amplifier equipment.

The principle of the Rotol equipment used for flight tests, which determines both alternating and steady stresses, is relatively simple. The gauge is used in a Wheatstone Bridge, and the direct-current voltage output of the bridge is applied to the amplifier input by a condenser. A normal audio-frequency amplifier will not measure a steady voltage, such as is obtained during steady stress measurement, and so a mechanically driven contactor is placed across the input of the amplifier, so that the voltage applied is one moment the voltage to be measured, and the next moment the amplifier input is shorted to earth and hence there is zero voltage input; this procedure is repeated indefinitely. This, in effect, supplies a square wave a.c. input to the amplifier and the resulting record is as shown in the diagram. The frequency of this a.c. input to the amplifier is some 10,000 cycles per min. The amplitude of the square wave is proportional to the direct-current output of the bridge, and hence to strain.

It will be noted that the time of shorting is arranged to be less than the time of application of the bridge voltage. This provides a means of detecting whether the gauge is under tension or compression. If the wave of (*a*) in the diagram given hereunder is found to be due to the application of tension to the gauge then the result as shown in (*b*) would be obtained by the application of compression to the gauge. For this purpose the bridge is also arranged to be balanced

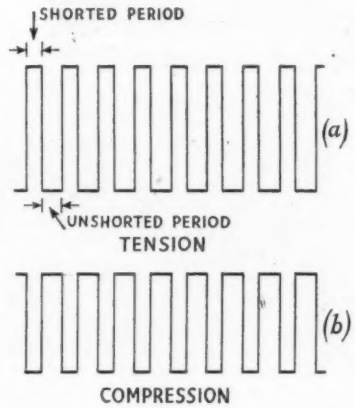


Diagram showing effects of tension and compression

(that is, to have zero ouptut) in the unstrained condition of the gauge; this produces a positive voltage output to earth for tension and a negative voltage to earth for compression.

It has been found that the sensitivity of the wire-wound gauges used in the aircraft industry is constant for a given batch of wire to an accuracy of ± 3. Hence for all ordinary measurements it is not necessary to carry out a calibration of the gauge against a mechanical extensometer. The gauge sensitivity is expressed as $P = \frac{\delta R}{e Ro}$ and the average value for this constant P is 2·2.

δR = Change in resistance when
e = strain applied to gauge,
Ro = unstrained resistence of gauge.

Thus, for a stress of 5,000 lb./sq. in. in Duralumin, a strain of

$$e = \frac{5{,}000}{10{\cdot}6 \times 10^6} = 0{\cdot}471 \times 10^{-3}$$

is obtained.

The change in gauge resistance will then be

$$\delta R = P\,e\,Ro = 2{\cdot}2 \times 0{\cdot}471 \times 10^{-3} \times 10{,}000 = 10{\cdot}3 \text{ ohms.}$$

Thus, by inserting a resistance of 10·3 ohms in series with the gauge, the resulting increase in amplitude of the record will represent a stress of 5,000 lb./sq. in. in Duralumin; the member to which the gauge is assumed to be stuck. This leads to a speedy method of calibration of the amplifier and recording equipment. Similar values of calibration resistance to be used when the gauge is stuck to other materials are given in the table below:—

Material	Young modulus, lb./sq. in.	Stress, lb./sq. in.	Insertion resistance, ohms	Alternating stress constant (k)
Steel ...	30 × 10⁶	10,000	7·35	855
Duralumin...	10·6 × 10⁶	5,000	10·3	303
Aluminium	9·9 × 10⁶	5,000	11·1	283
Magnesium	6·3 × 10⁶	4,000	14·0	180

It is not possible to obtain wire of which resistance is constant with temperature and a change in temperature will cause a change in apparent stress. To overcome this likely error, it is the usual practice to use a temperature-compensating gauge, which is located near the stress-measuring gauge, but stuck to a separate and unstrained piece of the same material as that on which a measurement is being carried out. This piece of metal is usually a strip of sheet metal screwed at one end to some convenient point of the parent structure. A useful alternative when measuring stresses on a symmetrical section is to put one gauge on the tension surface and the other gauge on the compression surface of the member. This method doubles the effective sensitivity of the measuring circuit as well as providing compensation.

Normally, all steady and vibratory stresses are recorded on a moving film (70 mm.) against time, but occasionally records are taken in which the ordinates are stresses and the abscissæ are proportional to some mechanical movement, for example, movement of a piston.

Stresses can be measured only on the surface of a material, and so long as wires can be brought out from the inside of the structure to the external recording equipment there is no difficulty in securing the desired data. If the internal part of the structure is under pressure, wires will have to be brought out in the same manner as in a water-immersed motor in normal electrical practice.

In the aircraft industry today, three types of measurement of stresses are in regular use; the first two are of the greatest importance to the railway engineer:—

1. Steady stress measurements using a light spot galvanometer and used only for ground tests. This method is cheap and easy.
2. Alternating stresses measured on the ground or in flight using amplifier and recorder.
3. Steady stresses measured with same apparatus as (2), but with addition of "chopper" only. This eliminates errors of a galvanometer (method (1)) caused by sharp turns and vibration of aircraft or vehicle.

AKTIEBOLAGET SVENSKA JÄRNVÄGSVERSTÄDERNA.—**The report for 1943 of this Swedish railway rolling stock building and repair concern states that orders on hand at the end of the year were satisfactory, and that the position had been the same during the whole of the period under review. Despite that, however, the working profit decreased to kr. 3,200,000, compared with kr. 4,410,000 for 1942. Taxation absorbed kr. 1,400,000 (kr. 1,800,000), and depreciation amounted to kr. 320,000 (kr. 970,000). The net profit was kr. 2,010,000 (kr. 2,170,000), and, inclusive of the sum brought forward, kr. 2,900,000 (kr. 2,200,000 was available for distribution. A dividend of kr. 6½ a share (same) was paid, and kr. 1,590,000 (kr. 890,000) was carried forward.**

Automatic Signalling in Spain

Power and automatic signalling have found only limited application in Spain but will probably be much extended

Three-aspect automatic colour-light signal

THE signalling arrangements originally adopted on the Spanish railways were taken from French practice and were generally comparatively simple. Many stations, especially on the single lines, were protected by a single signal only, a round red disc outer signal, showing a red or a white light, similar to the French *disque*. At more important places a home signal, as understood in this country, would be used also in the form of a square board painted on the Norte in red and white squares, as with the *carré* in France, or on the Madrid-Zaragoza-Alicante line, red with a white border, once the practice on the old French Western Railway. The stop indication, which was absolute, was given by two red lights and proceed by a white light. Direction indicators, of the fishtail-semaphore type seen in France, were used at junctions and the larger stations.

Key interlocking apparatus of the Bouré type was extensively used. Mechanical signalling designs took various forms, including both rod and double-wire working, supplied by various firms, including some well-known British and German ones. Power signalling was used at a few places. The hydraulic system was adopted for the Atocha terminus in Madrid, M.Z.A. Railway, and the French M.D.M. apparatus, in its hydro-pneumatic form, for the Norte terminus, Principe Pio. A large all-electric installation of French make was put down in Barcelona. The M.Z.A. Company made some use of semaphore signals, working in the lower left-hand quadrant, although it ran its trains on the right on double lines, and adopted the bracket-type signal at junctions. The Atocha hydraulic power installation was signalled with semaphores.

Introduction of Automatic Signalling

Interest in automatic and colour-light signalling began to be taken a few years after the last war, and eventually some important installations were put down which, although not covering any great length of route, incorporated the best technical equipment. The M.Z.A. Company about 1924 equipped a short section—about four miles—between Madrid and Villaverde with the so-called P.D. type enclosed-vane signals, used extensively on the Midi Railway in France. These signals, invented by a Midi Railway engineer, Paul Ducousso, some years ago, consist of a glazed case, round or square according to the type of signal, in which two metal vanes move to produce a coloured face or, by exposing the interior of the case, a white surface, which is the "clear" aspect. Glasses in the vanes cover or uncover lamps for the night indications. The mechanism is totally enclosed and of light construction.

No further use appears to have been made of this kind of signal in Spain and the M.Z.A. Company, when deciding to equip a number of sections on its lines converging on Barcelona, adopted the 3-position upper-quadrant semaphore, with marker light, staggered on permissive, and placed vertically below the signal light on absolute, signals. The "normal clear" system of control was adopted, although the "normal danger" method was used with the P.D. signals, and the signal spacing was arranged to give a 5-minute headway. The working was carried right through the stations and junctions, with continuous track circulating and semi-automatic control.

At most locations three positions of the semaphore were sufficient, but at the approach to turnouts it was necessary to give a fourth aspect on the signal in rear, when a reduction of speed was called for. This was done by providing the signal with two arms and using an aspect already used in America to indicate "reduce to medium speed," the lower arm being vertical and the top arm inclined at 45 deg. In some stations, where clearances made it difficult to erect posts and expensive gantries which otherwise would have been needed, ground signals were provided as starting signals. The apparatus was exclusively of the a.c. type, using 3-position motor type track relays and control without line wires, although it was decided to use the latter on electrified sections, as affording greater security. In the stations, power frames under the control of the stationmaster, with illuminated diagrams, approach, and sometimes route, locking were provided. The approach locking could be cancelled by using a hand screw release. Power was taken from an industrial supply, with emergency connections to alternative sources, and at certain selected points petrol generating standby sets were installed.

Adoption of Light Signals

About the time that the M.Z.A. Company made its first installation of 3-position semaphores, the Norte Company installed colour-light signals on its electrified Pajares line. These were not automatic but merely replaced the old disc type mechanical signals, for the purpose of obtaining better visibility among the contact-wire structures, and gave the same indications as the old signals did by night, with the addition of a lunar white marker. (The marker lights on the M.Z.A. signals were red). A few years later, however, the Norte Railway adopted 3-aspect colour-light signals for an automatic signalling installation between Madrid and Pozuelo, using the separate lens system, and the M.Z.A. also decided to use these signals in places where the visibility of semaphores was adversely affected by bad backgrounds. The very favourable reports received from the locomotive department decided the company to adopt the light signal for all work. Eventually the single lens or searchlight type of signal was introduced.

Results Obtained

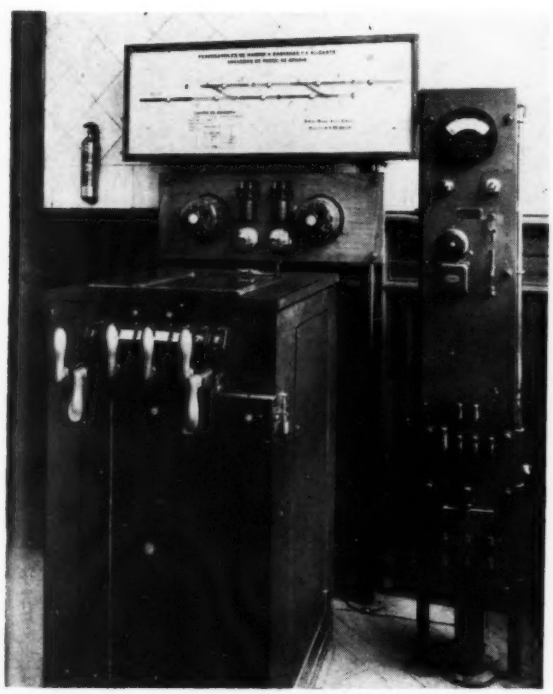
The performance of the automatic signals was reported by the old companies, now merged in the united RENFE system, as being uniformly satisfactory, although the fact that parts of the routes equipped ran close to the seashore rendered the apparatus more liable to disturbance than it would otherwise be. Little information has been published of recent years on Spanish signalling, but it is probable that, in spite of the difficulties created by the civil war, some of the installations have been improved and extended. The photographs illustrating these brief general remarks were kindly provided by the former M.Z.A. Company as typical of the work in service before the national railway system was formed.

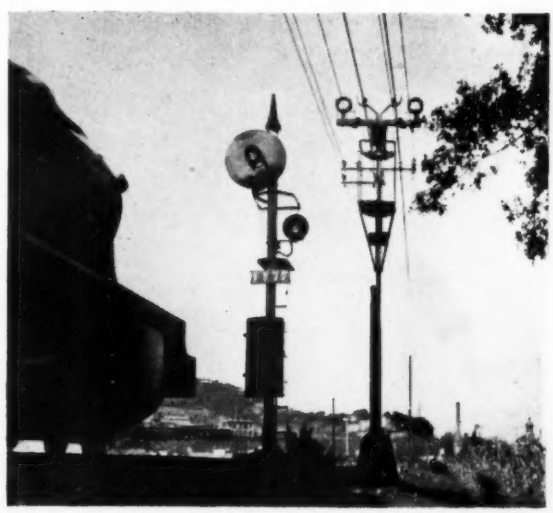
WASTE PAPER RECOVERY.—The need for the salvage of all forms of waste paper and the utmost economy in the use of paper will not be lessened by the end of the war in Europe. The great calls on available shipping, which the continuance with the war in the Far East will make on the Allied Nations, and the United Kingdom in particular, will necessitate the most careful husbanding of resources. In some respects, too, the shift of the main impact of war to more distant theatres may make added demands on available paper supplies.

PRODUCTION CONTROL FOR SMALL FACTORIES.—British Standard 1100: Part 2: 1944, which was issued recently, represents the second of three booklets dealing with production control. It is designed to advise on production-control technique in the small factory, with the overriding object of stressing the need for control if production is to be increased economically, and waste of time and effort eliminated. The booklet may be found of greatest use in the factory employing from 50 to 200 persons; but it is recognised that, for production-control purposes, a factory employing 200 may be simpler than one employing 50, if the type of product of the former is the less complex. Copies of the booklet, "Production Control in the Small Factory," may be obtained from the Publications Department, British Standards Institution, 28, Victoria Street, London, S.W.1, price 2s., post free.

Automatic Signalling in Spain

Left: Three-position automatic semaphore signal showing "caution" aspect on line alongside the seashore (right-hand running)
Centre: Four-aspect 2-armed permissive outer signal at approach to home signal at station turnout
Right: Bracket type junction absolute 3-position semi-automatic home signal (right-hand running)





Above: Train passing 3-aspect automatic searchlight-type signal

Left: Electric power frame controlling cross-overs and signals at wayside station

U.S.A.T.P.O.

Interior of modern American mail van showing arrangement of mail bags into which mail is sorted

RAILWAY NEWS SECTION

PERSONAL

Sir Archibald McKinstry, Deputy-Chairman & Managing Director of Babcock & Wilcox Limited, is retiring from the Managing Directorship on December 31. He will remain Deputy-Chairman. Mr. C. K. F. Hague, Deputy Managing Director, has been appointed to succeed him as Managing Director.

Mr. B. L. Curran, Acting Manager & Secretary, County Donegal Railways Joint Committee, has been appointed Manager & Secretary.

Mr. William Alexander Anderson, A.M.Inst.C.E., lately Divisional Superintendent, Rawalpindi, North Western Railway, India, who, as recorded in our September 29 issue, has been appointed General Manager, from September 9, was born on January 29, 1890, and joined the N.W.R. as an Assistant Engineer in October, 1913. Except for a period of two months in 1920, during which he worked on the Bombay Sindh Connection Survey, all his service has been on the N.W.R. In 1921 he worked on the conversion of the Nowshera Durgai section from the 2 ft. 6 in. gauge to that of 5 ft. 6 in. Mr. Anderson became Divisional Superintendent in 1938, and, before taking over as Chief Engineer for a month last August, he was at Rawalpindi.

Mr. F. E. Wentworth-Sheilds, O.B.E., who retired in 1936 from the position of Docks Engineer, Southern Railway, has been elected President of the Institution of Civil Engineers for 1944-45.

Sir Samuel Turner has resigned from the Chairmanship of Turner & Newall Limited. Mr. W. W. F. Shepherd, Deputy Chairman, has been appointed Chairman. Sir Samuel Turner has agreed to remain a Director for the time being, and to be Deputy-Chairman in place of Mr. Shepherd.

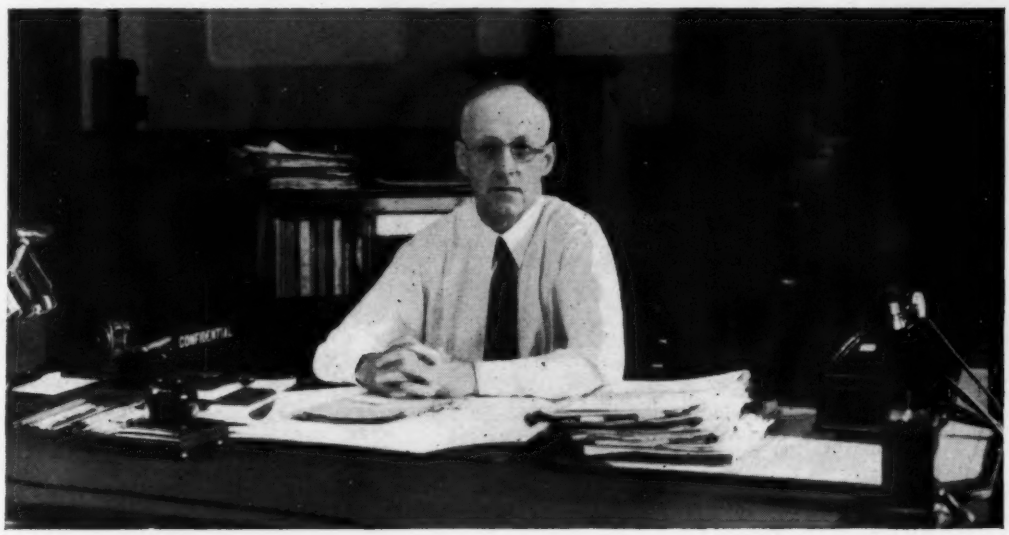
We regret to record the death, on September 27, of Mr. Thomas Johnstone, formerly District Goods & Passenger Manager, Inverness, L.M.S.R., who retired at the end of 1939.

The late Sir William Chamberlain, who was Regional Transport Commissioner, North Western Region, left £16,158.

Mr. R. M. Murray, General Manager of the Mount Lyell Mining & Railway Co. Ltd., has resigned on account of ill-health. Mr. A. H. P. Moline, General Superintendent of the company's mines and works in Tasmania, has been appointed General Manager.

The Rt. Hon. Viscount Swinton, G.B.E., C.H., M.C., Minister Resident in West Africa, has been appointed Minister for Civil Aviation.

Commander G. O. Waters, R.N.V.R., General Manager of Jersey Airways Limited and Guernsey Airways Limited, has been granted leave of absence from the Admiralty to carry out the preliminary organisation for the restoration of civil air services to the Channel Islands as soon as circumstances permit. Jersey and Guernsey Airways, owned by the Great Western and Southern Railways, ran as many as twelve services a day with nearly 200 passengers before the islands were occupied, and the railways plan extensive post-war improvements.



Mr. W. A. Anderson

Appointed General Manager, North Western Railway, India

Sir Leslie Boyce, K.B.E., M.P., Chairman & Managing Director of the Gloucester Railway Carriage & Wagon Co. Ltd., has been appointed Chairman of Wagon Repairs Limited, in place of the late Mr. J. B. Mundell.

L.M.S.R. Appointments

The L.M.S.R. announces that Mr. Alfred John Rice has been appointed Assistant (Freight Rates & Charges), Chief Commercial Manager's Office, H.Q., on the retirement of Mr. H. B. Webster; and that Mr. William H. Glossop becomes Assistant (Rates Tribunal), Chief Commercial Manager's Office, H.Q., in place of Mr. Rice.

The late Mr. H. C. Vickers, who was a Director of the Hydraulic Coupling & Engineering Co. Ltd., left £124,919.

London Passenger Transport Board.

Mr. G. F. Sinclair, Chief Engineer (Trams & Trolleybuses), having completed the Government work to which he was temporarily seconded, resumed his duties with the Board as from October 2.

Mr. R. S. Good, A.M.I.E.E., Divisional Engineer (Electrical), Trams & Trolleybuses, has retired.

Mr. G. E. Taylor has been appointed Constructional Engineer, on the retirement of Mr. E. H. Cockshott

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South African Railways & Harbours

Mr. W. E. Purvis, Secretary, Railway Board, has been appointed Administrative Secretary to the Minister of Transport.

Mr. R. H. Tarpey, Secretary, Central Housing Board, has been appointed Secretary, Railway Board.

Mr. A. van Lingen has been appointed to the new post of Public Relations Officer.

Mr. Alexander McColl has been elected Chairman of the Superheater Co. Ltd., in place of the late Mr. H. W. Lee. Mr. Harold Melhuish, Secretary of the company, has been elected a Director.

Institute of Transport

Among those elected recently to membership of the Institute of Transport are Messrs. D. Blee, Assistant to Chief Goods Manager, G.W.R.; F. H. Cave, Chief Traffic Manager, Mersey Docks & Harbour Board; H. A. Davis, Deputy Director-

General of Railways, Calcutta Area ; S. A. Fitch, Assistant for Train Services, Southern Railway ; and J. R. Pike, Assistant Chief Commercial Manager (Goods), L.M.S.R. Those elected to associate membership include Messrs. G. S. Bingham, Assistant Depot Engineer & Breakdown Engineer (Railways), and C. J. Corker, Assistant to Development Superintendent, L.P.T.B. ; H. W. Few, Assistant to Superintendent, Southern Area, L.N.E.R. ; D. F. Franks, Hydrographical Assistant, Southampton, Southern Railway ; J. Hamilton, Controller of Road Transport, Sierra Leone Government Railways ; A. Jessop, Assistant (Outdoor) to Chief Commercial Manager, and H. Macdiarmid, Assistant Divisional Controller (Passenger Services), Scotland, L.M.S.R. ; P. W. R. Marston-Clark, North Midland Region, Ministry of War Transport ; G. E. J. Monson, Deputy Technical Officer, L.P.T.B. (seconded to Ministry of War Transport as Mechanical Engineer) ; S. K. Datta Ray, Assistant Commercial Officer, East Indian Railway ; P. Wildgoose, Goods Agent, Salford, L.M.S.R. ; and T. C. Woods, District Engineer (Way & Works Department), Buenos Ayres & Pacific Railway.

Sir Ronald Matthews, Chairman of the company, presenting the L.N.E.R. Medal to Mr. B. Gimbert, G.C., driver (*see paragraph, page* 367)

We regret to record the death on October 2, at the age of **63**, of Mr. Walter Cecil Moore, who from **1938** until his retirement last March was Chief Assistant to the Chief Electrical Engineer, Southern Railway.

Major-General K. C. Appleyard, O.B.E., M.I.Mech.E., has accepted the invitation of the council to be President, Junior Institution of Engineers, for **1944-45**.

Mr. J. H. McCorkindale, Chief Clerk of the Advertising Section, District Passenger Manager's Office, Manchester, L.M.S.R., retired on September 30, after 44 years' and six months' service.

We regret to record the death, in Bangalore, India, of Mr. Frederick J. C. Hanson, Chief Engineer, Madras & Southern Mahratta Railway.

Mr. F. H. Kidd, Assistant Engineer to the Western National Omnibus Co. Ltd. and its associate, the Southern National Omnibus Co. Ltd., has been appointed Chief Engineer to the Western Welsh Omnibus Co. Ltd. in succession to the late Mr. A. Dimmack.

G.W.R. Appointments

The Great Western Railway announces the following appointments :—

Mr. E. C. Cookson, Assistant to Chief Engineer, Paddington, to be Divisional Engineer, Newport, from January 1 next, on the retirement of Mr. T. T. Mead at the end of the year.

Mr. M. G. R. Smith, Assistant Divisional Engineer, Paddington, to be Assistant to Chief Engineer, Paddington, from October 9.

Mr. G. Thomas, Assistant Divisional Engineer, Wolverhampton, to be Assistant Divisional Engineer, Paddington, from October 9.

Mr. A. Higginson, Assistant District Traffic Manager, Oswestry, to be Goods Agent, Birkenhead, from September 1, on the retirement of Mr. F. E. Turner.

Mr. S. C. Harvey, Chief Clerk, Divisional Superintendent's Office, Worcester, to be Assistant District Traffic Manager, Oswestry, from September 25.

Mr. C. E. Drew, Clerk, Divisional Superintendent's Office, Worcester, to be Chief Clerk, Divisional Superintendent's Office, Worcester, from September 25.

We regret to record the death in action, at the age of **34**, of Major H. J. W. Marsh, a Director of Spear & Jackson Limited.

We regret to record the death on July 16, at the age of **56**, of Mr. A. E. Weatherly, Stationmaster, Macclesfield, L.M.S.R. & L.N.E.R., for the last fourteen years.

Relighting at Paddington Station, G.W.R.

A view of No. 1 *platform at Paddington Station, G.W.R., as it appears under the new lighting in force since October* 2. *The illumination is about five times better than that permitted under the old blackout restrictions*

TRANSPORT SERVICES AND THE WAR—263

Restoration of Place-Name Signs

The Home Secretary has made an Order revoking the Removal of Direction Signs Order, 1944. The revocation took effect on Tuesday, October 10, on which date all the emergency restrictions on the exhibition of place names came to an end throughout Great Britain.

Summer Time in Eire

An Order of the Government of Eire has extended summer time in Eire throughout the coming winter. From October 8 to April 21, 1945, lighting up hours are from half-an-hour after sunset to half-an-hour before sunrise. During the winter months, Eire and Northern Ireland are thus working to the same time, namely, one hour in advance of Greenwich Mean Time.

American Tribute to British Railways

A message of appreciation has been sent by Lt.-General John C. H. Lee of the U.S. Army to the British railways for the help given to the Americans since they came to this country more than two years ago. General Lee expresses appreciation of "the perfectly magnificent support" given by the railways for over two years, and says "every request of the United States Forces has been cheerfully met by the British railways; albeit often it caused sacrifices on their part."

Wartime Link at Bounds Green

It is now permissible to record that through goods trains are being worked from the main line of the Great Northern Section, L.N.E.R., direct to Temple Mills sidings and the London Docks area by means of the Stevenage-Cuffley line, Palace Gates, Seven Sisters, South Tottenham, and Coppermill junction. They use a direct connection which has been laid in at Bounds Green between the *ex*-Great Northern Enfield branch, and the *ex*-Great Eastern Palace Gates branch. It is a single-line connection which takes off from both up and down lines just south of Bowes Park Station, and was brought into use on July 9.

Improved Railway Lighting

Last week we recorded that Paddington Station, G.W.R., was the first of the London main-line stations to adopt the improved lighting standard (on October 2), and an illustration of the famous Platform No. 1, as now illuminated, is reproduced opposite. Euston and St. Pancras, L.M.S.R., and Waterloo, Victoria, and Charing Cross, Southern Railway, returned to normal lighting on October 3. Kings Cross, Marylebone, and Liverpool Street, L.N.E.R., followed on October 4; as well as London Bridge, Cannon Street, and Holborn, Southern Railway.

Work is in hand at 250 large stations on the Great Western Railway and many smaller ones to improve lighting. In G.W.R. trains some 28,000 shades have been removed, and 57,000 more powerful electric bulbs fitted.

On the L.M.S.R. work has been begun on 3,900 corridor vehicles in which there are some 100,000 shades, and 6,200 non-corridor coaches with 45,000 shades.

On the L.N.E.R. work is proceeding at stations and in trains, where shades in 71,200 compartments, comprising 58,000 electrically-lighted and 13,200 gas-lighted compartments, require treatment.

London Transport has already installed better lighting at 26 stations.

"D" Day and After on the Southern

In view of geographical considerations, the Southern Railway was peculiarly affected by "D" Day traffic and its aftermath, and also by the flying-bomb attack which began shortly afterwards. Comparatively few precise details have yet become available for publication, but one or two impressive figures have been issued officially by the Southern Railway.

The statement points out that quiet stretches of line were put to new uses, and that in one instance a country station, which in peacetime was sufficiently served by one siding, had been enlarged by "D" Day to 14 miles of sidings, holding 2,500 wagons. One Southern Railway depot is known as Woolworth's because it now supplies everything for use overseas from nuts and bolts to a tank engine. Before the war there was one down and one up goods train a day, but now there are 17 long special trains to upwards of 85,000 official evacuees from the flying bombs, while 150 other trains had to be run to help those making their own evacuation.

Transport Restoration in France

After extensive disorganisation at the time of the Allied invasions of France, transport services are being restored gradually, and the following notes summarise the position so far as it has been reported.

Several Paris bus services were stated by the Algiers radio on September 2 to have resumed working (see our September 8 issue, page 242). It has since been reported that four bus services have been running regularly since Monday, September 25. A limited service on the Paris Metro under-

A marshalling yard supply base on the Southern Railway

ground railway system, on weekdays only, is stated to have been resumed on September 11 (see our September 15 issue, page 266), but not all the stations are open.

The suburban train service in the Paris region was restored on September 5 (see our September 22 issue, page 291).

In the north, a Cherbourg-Carentan public service was restored on August 4; a Bayeux-Caen service on August 21; and a Paris-Cherbourg service on September 15.

Railway traffic between Geneva, Annemasse, Annecy, and Aix-les-Bains was sidings and a shed more than 1,000 ft. in length, complete with overhead electric cranes, dealing with 1,000 wagons a day. Between June 1 and the end of August, 500 special trains of petrol and oil, and 232 trains loaded with armoured fighting vehicles were run by the Southern Railway.

In the three months, 3,000 troop specials in one direction and 250 prisoners-of-war trains in the other direction ran over the Southern Railway.

During the period after "D" Day, the Southern Railway also dealt with 127

A Southern Railway official evacuation party on July 11

resumed on September 20 (see our September 29 issue, page 313). Trains run on weekdays only. When the first passenger train from Annemasse arrived at Geneva on September 20, for the first time for more than a year, a Franco-Swiss celebration was organised to mark the occasion, and Geneva station was hung with flags of both countries. The Mayors of Annemasse and Geneva made speeches. It was reported on October 2 that there are now two trains daily from Geneva to France and back, and that the Swiss Government has organised a motor lorry convoy between Geneva and the Spanish border for the transport of goods and mail.

The train service between Paris and Toulouse was re-opened on Sunday, October 1. In announcing this, the Morocco radio said that railway traffic between Lyons and the Italian frontier was about to be resumed; and that railway communications between Lyons and the Mediterranean, and the Swiss frontier, had already been established. Passenger trains between Paris and Orleans, and between Paris and Lyons, were restored on Monday, October 9.

See also the account from our own Paris correspondent below.

The Railway Situation in France

An eye-witness survey by our correspondent in Paris, transmitted through the S.H.A.E.F. headquarters

Ever since the bridges and tracks in the Paris area were bombed and wrecked to cut off rail communication with the Capital, the main lines of France have been as though dead and deserted, the only sign of life in the terminals being a very sparse suburban service. A welcome feature of reviving activity was the arrival of some American locomotives. On August 31, just a week after the liberation of Paris, the first freight train completed its run from Cherbourg. Others soon followed and engines of the Mountain type were a source of lively interest to French railwaymen.

Talking to newspaper men in the station, an American officer told how the locomotives crossed the Channel in special boats. On June 27, five American railwaymen landed in Normandy beach to tackle the job of getting the lines in running order and other pioneers arriving; they ran the first passenger train from Cherbourg to Carentan on July 11. The first troop train carrying a battalion to the fighting line was run on July 22. Repairs to the main line between Cherbourg and Paris required the provisional reconstruction of many bridges. Transport of troops and war material is the urgent need, but Parisians are promised increasing supplies of food and coal. The first coal train came into Paris on September 15 and, thanks to the hard work of the railwaymen, five or six coal trains are now coming in daily, while the number may be raised to nine or ten during October, giving grounds to hope that the severe restrictions of the gas and electric supplies may soon be eased.

News that from October 9 some long-distance trains would resume running caused general satisfaction. The first runs between Paris and the provinces included trains to the South: from Paris to Toulouse, changing at Orleans; and from Paris to Lyons, changing at Nevers for Clermont-Ferrand and Saint-Etienne. Passengers were informed that they must apply at the stations for cards of admission to the trains to ensure accommodation. Journeys were permissible for urgent reasons only. Previous announcements indicated that railcars are running to Toulouse, Clermont, Lyons, Marseilles, Rennes, and Nantes, but these are for the use of travellers on business of national interest only, comprising officials of government and business organisations, as well as S.N.C.F. officials.

Reconstruction

A vast amount of reconstruction work now faces the French National Railways (S.N.C.F.) in many parts of the country. Wherever possible, local repairs are already in progress. According to the S.N.C.F. authorities, the number of railway structures destroyed was 1,860, and recent operations have added to the total. Marshalling yards have suffered severely in many cases.

As early as 1940 the S.N.C.F. had already drawn up a ten-year renovation plan, subject to limitations due to the German occupation. The situation in 1944 is much more serious, and the plan will require revision, though the authorities state they will follow the original draft as closely as possible to make it a prime factor in restoring the prosperity of France. Despite diminished means and obstacles arising out of the war, French railway traffic greatly increased during the war and reached a total of 60 per cent. above that of 1938.

While this achievement gives a measure of the capacity of the S.N.C.F. system, it also led to inevitable waste of resources, the wear and tear of material, and forced neglect of maintenance work. When the war comes to an end, reconstruction on which the country's trade revival depends must be effected with all possible speed. Though urgent and essential, the task is not viewed as one of insuperable difficulties. The French railway system has maintained its solid structure under the test, and kept intact an organisation, which will enable it to use with maximum efficiency the rather limited means available for this purpose at the outset.

With the war scars healing, France must adapt herself to meet an aftermath of extensive needs. There will be more to do than merely restore the ruins. This is why the S.N.C.F. plan is not solely one of necessary restoration, but aims further at creating higher values and hence enhancing the national wealth. The restoration work, which is the starting point rather than the goal, will find an extension in all sorts of improvements intended to base the railway system and policy on technical progress and economic needs. The ten-year plan comprises three sections: permanent way, rolling stock, and fixed structures.

It may take five years to catch up with the delay in the maintenance of the permanent way, and the tonnage of materials required (except for sleepers) will not exceed the capacity of French production. The permanent way will be improved at least cost by combining the improvements with the work of overtaking the delay in maintenance. The maximum permissible axle load, now at 18 *tonnes* for 18,000 km. of single line, will be raised to nearly 23 *tonnes*. This increase in load will correspond to an increased yield. It will permit of the use of heavier locomotives, handling higher loads and wagons of greater capacity for a deadweight of the same order as the present wagons.

Among other improvements in view are the development of the colour-light automatic block system, the cost of which will be largely compensated by the increase in the volume and regularity of the traffic, greater safety, and savings due to block signalmen being no longer needed; the tripling and quadrupling of tracks; and the suppression of scissors crossings and all level crossings.

Rolling Stock Requirements

Since the plan was drafted, the war has wrought havoc with the rolling stock. The guiding principle in renovation will be a more rational use of the rolling stock due to centralisation under the management of the S.N.C.F. A total pool of rolling stock on a more modest scale than that of 1938 will be able to deal with an equal volume of traffic.

New types of rolling stock are proposed under the ten-year plan, following the renovation policy originating with the formation of the National Railway Company. The number of types will be reduced and standardised to some extent by the formation of "families of machines" with a maximum of parts in common. This method offers manifold advantages such as reductions in prices, easy substitution of spare parts, and smaller reserves and supplies.

Four Locomotive Types

There will be four types of steam locomotives instead of twenty ordered in the ten pre-war years; two types of coaches instead of nine; and six for wagons instead of ten. Prototypes now under consideration with a view to purchase are as follow: One powerful goods locomotive; two locomotives with high adhesion, one for goods, the other for fast trains; one electric railcar for outer suburban service; one diesel-electric railcar for shunting; one new diesel locomotive for freight service; and railcars of 300 and 150 h.p. to improve branch-line working.

Other prototypes, embodying recent technical progress, are now undergoing tests. These include steam turbine and gas turbine locomotives and trains of coaches on pneumatic tyres. Lighter construction of hauled rolling stock, an essential condition of cheaper traction, will be effected by building a single type of body, formed of electric-welded steel elements and light alloys. Extensive use will be made of light metals. Carriages and wagons will be built in series. The deadweight per seat in main-line coaches is to be lowered from 560 to 380 kg. (1,232 to 836 lb.). All these improvements will mean faster and more comfortable travel. They will permit such runs as: Paris to Lille in 2 hr. 15 min.; Paris to Havre in 2 hr.; Paris to Bordeaux in 5 hr.; and Paris to Marseilles in 8 hr. 30 min.

Extensive Electrification

Further extensive electrification will be undertaken as the most important part of the plan. The Brive-Montauban electrical work was completed in 1943, and that on the Sète-Nîmes line is now in progress. Electrification of the Paris-Lyons and Bordeaux-Montauban lines will follow. Lines towards Switzerland will be electrified, and also some Paris suburban lines. The estimated expenditure is eleven milliard francs (£55,000,000 at 200 fr. to the £1). This sum will effect economies. The entire programme covers 2,156 km. (1,340 miles). When it is completed, electric traction will provide 40 per cent. of the traffic, against 18 per cent. at present; the annual saving of coal will be about 3,000,000 *tonnes*. Construction of 800 electric locomotives will dispense with 1,830 steam locomotives, representing further substantial savings.

Some Lessons of Wartime Transport*

Some applications to post-war conditions outlined by Mr. F. W. Lampitt, Chief Goods Manager, G.W.R.

In a recent address on "Some Lessons of Wartime Transport" to the Bristol Branch of the Institute of Transport, Mr. F. W. Lampitt, Chief Goods Manager, G.W.R., said that, viewed in retrospect, the pre-war transport position in this country might be described as an orderly chaos. Choice of use of the various branches of the industry had been determined in part by price; in part by standards of service; in part by the extent of knowledge of potential prices and services; in part by advertising and commercial considerations; and in part by terminal facilities.

The development of transport had been influenced by the location of industry; the proximity of industry to markets and to ports; the varying standards and costs of port operations; the incidence of preference for this or that by the commercial users of transport; the use of the bargaining medium; and so forth.

The progressive elimination of luxury goods; the rationing systems; the zoning of many essential commodities; new factors in selection of ports by shipping arrivals and convoy working; the regulation of commercial exports; the wartime materials controls; the major factor of development of the heavy war industries; the important influence of American ordnance and other military depots; were all coupled with new standards of priorities, both in allocation of materials and in transport, and presented a markedly changed and heavy additional burden to the inland transport resources.

Mutual Understanding

Of the effects on the transport industry of wartime changes, one of the most important and gratifying had been the way in which the personalities controlling the several branches of transport service had been brought together, with a consequent increase in mutual understanding, trust, and goodwill.

The first and greatest lesson to be learned was that the transport industry was a unity, whose many branches must all, in turn, contribute to a mutual and complementary policy. During the war, service to industry and the nation had proved a common bond. He thought it should be regarded as a duty which the transport industry owed to itself to ensure that this bond remained within the industry in the post-war era.

One of the salient features of the wartime transport organisation had been the establishment, as a broad principle of the use of the railway system to maximum capacity. There had been, within boat and crew capacity limits, a resuscitation of canals for traffics where the time factor and terminal conditions had been most favourable, and extensive railhead distribution by road; a clear field for specialist road work, a complementary service of port clearance and some orderly direction of parallel services according to need. Price as a factor had largely disappeared, but it had been a controlled price, both as to railway and road transport.

In looking ahead to post-war transport needs, it seemed that we must predicate three phases: a period of intermediate continuance of commodity controls; a period of artificial prosperity created by a boom in consumer goods; and a future normality, based on the country's future economic position.

Post-War Questions

Questions which would have to be answered were: could we, as a nation, afford wasteful user of any of our assets in the post-war era? Could we afford to allow a sound system of inland transport to be jeopardised by outside extraneous influences? Could we afford to abandon the mutual trust and confidence which had brought cohesion within the transport industry? Could we lightly sacrifice the wartime cohesion by failure to agree on principles? Could we afford to fail to bring these factors fully to the notice of industry, that it might consider the benefits to be derived from moulding its own distribution methods to a sound economy of transport?

In assessing the incidence of freedom of choice, it would have to be remembered that the individual firm in any one trade had keen competition to face within his own trade, and was activated in many of its decisions by the need to capture the largest markets and by the desire to expand into the more distant markets.

The intending purchaser of transport wanted his product marketed with the "bloom" still on it: he wanted to see an immediate execution of his order: and these two factors were only qualified by cost of transport, according to the kind and selling price of his commodity.

The fact could not be ignored that the war had demonstrated the tremendous latent traffic capacity of the British railway systems. Nearly a million loaded wagons a week had been forwarded over the railway systems, and the wagon mileage they travelled exceeded by nearly 1,000-million miles a year the pre-war demand. Whether the railway companies, as private business concerns, stood or fell, the national asset which their systems represented in track and signalling, in wagons and motive power, in yards and terminals, and in skilled staff and experienced management, remained a national asset.

He asked, as a private citizen, whether the country could afford, concurrently with the servicing of a national debt of £21,004-millions; with the promotion of progressive national health and educational reforms; and with the imperative need substantially to increase our pre-war exports, either to waste any part of this national transport asset or to spend money in the development of alternative assets.

As a railwayman and speaking in his personal capacity, he still pinned his faith to private enterprise, to the extent that, if need be, he would leap out again with zest into the rough field of free competition. That, however, would be far from his considered view either of what was sound in the interests of the transport industry or from what had been learned by hard wartime experience.

There had been developed, during these last five years, many large schemes of improvement of railway services and facilities, jointly as between all the railway companies; and he believed that many of these schemes would, with others yet in the drawing-board stage, play their part in forging a more efficient instrument of railway transport.

As railways and as providers of a complete transport system, they feared no competition, and were satisfied that, within the range of development of post-war industry generally, they shall give their full share of service: in furtherance of which endeavours they would look for the early establishment of reasonable conditions of equality in the bases on which competitive services should be maintained.

G.W.R. Achievements

During the lean pre-war years, the Great Western Railway had held fast to its policy of the highest standards of track maintenance. Progressively, and at vast expenditures, it had entirely rebuilt and equipped on the most modern lines the main goods terminals at Paddington, at Bristol, at Birmingham, at Birkenhead, and at many other centres. This modernisation of terminal layout had been accompanied by investments in mechanical handling appliances, including six- and three-ton mobile cranes and mechanised platform trollies. Concurrently, systematic studies of methods and costs of every phase of operations had been conducted, with a view to enabling the highest standards of service to be provided at the cheapest cost. It was on this foundation that the Great Western Company had relied in meeting, under all the especial difficulties of wartime transport, the tremendous increased burden placed on it; and the success which had resulted was a tribute not only to the natural resilience of the organisation but to the standards which the company set itself during the period between the wars.

* Extracts from an address by Mr. F. W. Lampitt, Chief Goods Manager, G.W.R., to the Bristol Branch of the Institute of Transport on September 29

Staff and Labour Matters

Apprenticeships Interrupted by War Service

The Government has prepared a scheme, which has the approval of the British Employers' Confederation and the Trades Union Congress, for assisting apprentices whose apprenticeship has been interrupted by military or other national service. The main provisions of the scheme are as follow:—

(*a*) An apprentice who was in the last year of apprenticeship before war service, will be regarded as a journeyman on returning to his former occupation.

(*b*) Any other unexpired apprenticeship will be reduced by one-third of the period of war service, but the maximum reduction will be one-third of the unexpired period of the original apprenticeship.

(*c*) Time served by an apprentice at his trade (or comparable work) during his war service, will be counted as part of the apprenticeship.

(*d*) Until the age of 21 (or in some cases 23 in Scotland) or the date on which the original apprenticeship would have ended, whichever is the earlier, the employer will pay the wages, including war bonus, of the year of training which the apprentice would have reached had the apprenticeship not been interrupted, and afterwards, during the first half of the remaining period of training, wages must be not less than 10-12th of the journeyman's rate and during the second half not less than 11-12ths.

(*e*) The Government will give financial assistance to the amount of one-third of the recognised journeyman's rate of the trade, including war bonus, in the area of employment, payable when the apprentice reaches the age of 21 (possibly 23 in Scotland) or from the date when the original apprenticeship would have ended. For an apprentice receiving training in a technical institution or training centre, the

Government will make a training allowance, and there will be also an allowance to cover the amount of the fees. All these allowances will be payable up to a maximum of 104 weeks.

The proposals apply to all whose apprenticeship to a skilled occupation has been interrupted by whole-time service in the Armed Forces (including training under the Military Training Act, 1939); the Merchant Navy or Mercantile Marine; the Civil Defence services; the National Fire Service; the Police Auxiliary; the Civil Nursing Reserve; service in any of the capacities mentioned in the first schedule to the Reinstatement in Civil Employment Act, 1944; or other work of national importance, including industrial work, provided they were employed under arrangements made or approved by the Minister of Labour & National Service.

Inland Transport Development

Summary of the Presidential Address to the Institution of Automobile Engineers delivered by Mr. John Shearman, Road Motor Engineer, L.M.S.R.*

Mr. John Shearman, Road Motor Engineer, L.M.S.R., in his Presidential address to the Institution of Automobile Engineers, commenced with an historical survey of the technical developments of inland transport between 1800 and 1840. He said that in the latter half of that period serious efforts were made to introduce mechanical road transport by steam. These efforts were widely believed at the time to be likely to make railways unnecessary, and they provided the forerunners of the swift and convenient road motor-vehicles on the peacetime roads. He touched on early railway development, which was essentially local in character, and went on to deal with the efforts of the only three operators to run steam vehicles commercially; Hancock in London, Dance in Gloucestershire, and Scott Russell in Scotland. He gave some particulars of their services, which in the case of Hancock handled several thousand passengers in London.

He went on to deal with the workshop equipment and tools, and pointed out that the screw-cutting lathe and drilling machine were the only machine tools then available; that very low cutting speeds only could be used; and that steel was little used because of its expense.

The construction of two of the successful makes of steam coach were dealt with in some detail, namely, those of Hancock and Gurney. Special reference was made to the highly-developed technique of boiler construction which was far in advance of current practice; pressures of up to 250 lb. were used.

Based on the design and construction of the coaches the general conclusion was reached that the engines, through lack of suitable valve gears, were extravagant; the use of high-pressure superheated steam, feed water heating, and so on, was far in advance of current practice; but machine tools, brakes, and steering were very primitive.

Mr. Shearman went on to discuss the possibility of again using home-produced fuels for motor vehicles in this country. He said that as coal had been, and should be again, the primary source of our national wealth, and as cheap and efficient transport was essential to national prosperity, it was appropriate to speculate on the possible future use of home-produced fuels for motor vehicles. He pointed out that 1s. spent on coal would buy 1,750,000 B.Th.Us, whereas if spent on fuel oil it would buy only 150,000 B.Th.Us. at pre-war bulk prices. The very high weight of equipment equivalent to the petrol tank and carburetter, was commented on in the case of gas, electric, and steam vehicles. It was shown that whereas 1½ cwt. was the equipment weight for the petrol vehicle, for the producer-gas vehicle it was 15½ cwt., for a town's compressed-gas vehicle 8½ cwt., and for electric-battery and steam-driven vehicles it was practically 2 tons; these higher weights were in respect of a much smaller radius of action.

Comparing the quantity of coal (ignoring the different qualities) required to move 5 tons of pay-load 50 miles by various types of vehicles, Mr. Shearman said that a vehicle using producer-gas required 76 lb.; a town's compressed gas vehicle 137 lb.; and a vehicle using synthetic petrol from coal 200 lb. A steam car used 311 lb., and a vehicle with an electric battery 350 lb. The petrol needed for the work was 50 lb. These comparisons took no account of the characteristics of the vehicles for various specialised types of work. They were based on performances as these were known today, and they did not allow for any possible major improvements.

Sorry as he was to say it, Mr. Shearman thought that the future for the steam vehicle was poor, unless a radical re-design, including a condensing system, could be evolved. External combustion of liquid fuel would be little short of a crime. He saw no reason why a vehicle and producer-gas plant designed afresh as one unit should not give reasonably good results, using the higher qualities of home-produced solid fuel.

Compressed gas was clean, with a reasonable radius of action and weight of equipment within tolerable limits, but it required, with existing engines, a loss of maximum horsepower and needed expensive compressor plant and storage cylinders. Home-produced synthetic petrol provided the great convenience to be obtained from a good liquid fuel, though apparently it was extravagant in the coal required when compared with gas.

After referring to advantages and disadvantages in the use of methane, the dark horse in the fuel stable, Mr. Shearman concluded that strong political pressure or prohibitive duties would be needed if it were desired to limit strictly in this country the use of the convenient and efficient liquid fuels to which people were accustomed. He excepted the battery-driven electric vehicle, which in spite of its weight and inefficient system had many attractions for short mileages. The distant possibility of the use of pulverised coal should not be overlooked.

Discussing the weights for passenger vehicles Mr. Shearman said that the weight for each passenger carried in a tube train was nearly double that of a seat in a double-deck bus. If the standard of accommodation in the steam suburban train and the road coach were accepted as being approximately equal the advantage in weight for each seat again lay with the road vehicle. The maximum horsepower available for each seat was approximately: Rail, 1; road, 2¾.

The high weight of railway rolling stock undoubtedly produced low maintenance costs and a long economical life—four times or more than that of the road vehicle. Often in road passenger stock possible improvements in the ratio of unladen to pay-load weight were neutralised by the increasing demand for amenities, for example, on double-deck buses the weight for each seat had increased by about ½ cwt. in the last 20 years.

* "History and Conjecture." Address delivered in the Hall of the Institution of Mechanical Engineers, Storey's Gate, S.W.1, on October 3

Questions in Parliament

Travel between London and Southend

Mr. T. E. Groves (Stratford—Lab.) on September 29 asked the Parliamentary Secretary, Ministry of War Transport, whether he was aware of the inconvenience caused by the L.N.E.R. and L.M.S.R. refusing the general issue of tickets from London to Southend-on-Sea; and whether he would communicate with the companies and arrange, that, when people produced their identity cards, showing they resided in that district, tickets should be issued to them.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport) stated in a written answer: On account of very heavy congestion on passenger trains, the L.M.S.R. found it necessary to limit the number of ordinary tickets issued for each train from London to the Southend district, but not in the reverse direction. This limitation provided accommodation on trains for season, and workmen's ticket holders, and for those travelling on return halves of ordinary tickets. In addition, stationmasters have discretion in special cases to allow passengers to travel, although the full quota of tickets for the train has been issued. At present, passenger travel between London and Southend is under daily observation with the object of withdrawing the restriction immediately conditions justify this course. These arrangements safeguard the great bulk of residents in the Southend district, and I regret that it would be impracticable to adopt Mr. Groves' suggestion.

G.W.R. Sleeping-Car Facilities

Mr. R. R. Stokes (Ipswich—Lab.) on October 3 asked the Secretary of State for Air the number of official passengers using the sleeping-car facilities provided on the 12.15 a.m. train from Paddington to the West Country for the month of August or other suitable period. He also asked the Parliamentary Secretary, Ministry of War Transport, why the 12.15 a.m. train from Paddington to the West Country was not advertised, and why similar sleepingcar facilities could not be provided on the ordinary night train travelling to Cornwall.

Mr. P. J. Noel-Baker, in a written answer, stated: The 12.15 a.m. train from Paddington to Cornwall is a newspaper-train, not scheduled to carry passengers. As a special arrangement, sleeping accommodation is provided for twenty-four priority passengers; any berths surplus to priority requirements are available for

disposal to the public. During the month of August the number of priority passengers was 404, for whom berths were reserved on this train. There are serious operating difficulties in the way of providing sleepers on the ordinary night trains to Cornwall, but, at the request of a number of Members, I am considering whether in present circumstances it would be practicable to surmount the difficulties.

Zoning Arrangements

Sir Leonard Lyle (Bournemouth—C.) on October 3 asked the Parliamentary Secretary, Ministry of War Transport, how many commodities were subject still to zoning; and what the prospect was of early modification of these arrangements.

Mr. P. J. Noel-Baker stated, in a written answer: I understand that the following are the principal commodities or services subject to some form of zoning:—

Retail deliveries:—
General retail deliveries — Coal
Milk — Laundry

Wholesalers' or manufacturers' distribution:—

Beer	Self-raising flour
Cider	Biscuit flour
Apple juice	Soya flour
Soft drinks	Margarine and cooking fats
Tea	Rice
Coffee	Sugar
Cocoa powder	Syrup and treacle
Cocoa butter	Dried fruits
Bread	Salt
Milk	Yeast
Condensed and dried milk	Cereal breakfast foods
Butter and cheese	Pickles and sauces
Eggs	Sausages and open-packed meats
Chocolates and sweets	Sausage rusks
Cigarettes	Synthetic cream
White fish	Soap
Meat and livestock	Starch
Bacon and ham	Utility furniture
Certain fresh fruit and vegetables	Animal feeding stuffs
Potatoes	Waste paper
General groceries and provisions	Lubricating oil
Biscuits and crispbreads	Plaster board
Tins for packing foodstuffs	Stoneware pipes
Cakes and flour confectionery	Hardware
Preserves	
Bulk flour	

In addition, restrictions of varying kinds on road or rail movements apply to the following:—

Furniture removals	Newsprint
Certain fruit and vegetables	Bricks
Flowers	Stone, slag and lime
Home-grown grain	Sand and gravel
Race horses	
Funerals	

So far as transport is concerned, these schemes contribute a great deal to the relief of the wartime transport problem, but transport is often only one of a number of factors to be considered in relation to distribution and consumption. Other considerations relate to shortage of supplies, labour, factory and warehouse space, and to the desire to secure equitable distribution. Every effort will be made to withdraw as many restrictions as possible as soon as practicable after the end of the war, but it is unlikely that there will be any radical change in circumstances in the immediate post-war period.

Privilege Travelling Tickets

Mr. W. A. Burke (Burnley—Lab.) on October 4 asked the Parliamentary Secretary, Ministry of War Transport, if he would consider increasing the number of privilege travelling tickets allowed to families of serving personnel.

Mr. Noel-Baker: Since June 1 of this year, the wives of serving men have been allowed eight railway tickets a year at concession rates. There is no limit to the number they may obtain in order to visit service patients who are in hospital; and there is no limit to the number allowed to unaccompanied children under 16 years of age. In view of the continued pressure on the railway passenger services, I do not feel that it would be justifiable to increase further the number of tickets at concession rates which are allowed.

Steel Prices Schedules

Sir H. Williams (Croydon, S.E.—C.) on October 4 asked the Minister of Supply why the related schedules of steel prices have not been published as Statutory Rules & Orders, having regard to the fact that persons who sell any steel article at prices above those specified in the related schedules are liable to be prosecuted.

Sir A. Duncan (Minister of Supply): As I have explained in a previous reply, the related schedules to the Iron & Steel Control Orders would constitute a bulky document running into many thousands of pages. In the interests of economy in paper and printing it has not, therefore, been the practice to print them with the orders, though they are published documents available for inspection by any person interested. Particulars of the products and related schedules affected by price changes are published also in trade journals.

Sir H. Williams: Is the Minister aware that people sometimes have to travel long journeys for the purpose of inspecting these schedules?

Sir A. Duncan: This has been the practice now for the whole of the period of the war and I have never heard a complaint.

British Railways and British Buses

In view of the important new step that has been taken by the British Omnibus Companies Public Relations Committee in arranging for the issue, in co-operation with the main-line railways, of combined road-rail prestige publicity matter, to which we made reference in our issue of September 29 (page 298), it is of interest to record the current representation of the committee. At the beginning of the present year, there were 61 companies affiliated to the committee, owning a total of 13,652 buses, as shown in the following table, which also indicates the representative on the committee. It will be noticed that the companies include all those in the B.E.T. and S.M.T. groups (practically all of which are railway associated); the Midland Counties and the Red & White groups; and many large independent undertakings.

BRITISH OMNIBUS COMPANIES PUBLIC RELATIONS COMMITTEE: LIST OF AFFILIATED COMPANIES AND OF THEIR REPRESENTATIVES ON THE COMMITTEE

List of affiliated companies and their representatives on the committee

	Affiliated company	Buses owned*	Representative
1.	Aldershot & District Traction Co. Ltd.	228	Sidney Garcke
2.	Barton Transport Limited	182	E. L. Taylor
3.	Birch Bros. Ltd.	42	R. W. Birch
4.	Birmingham & Midland Motor Omnibus Co. Ltd.	1,411	R. J. Howley
5.	Black & White Motorways Limited	42	D. M. Sinclair
6.	Central S.M.T. Co. Ltd.	390	Sir Wm. J. Thomson
7.	Chatham & District Traction Company	46	Col. H. I. Robinson
8.	Cheltenham District Traction Company	41	J. H. Watts
9.	City of Oxford Motor Services Limited	181	W. T. James
10.	County Motors (Lepton) Limited	23	J. S. Wills
11.	David MacBrayne Limited	57	H. T. Leith
12.	Devon General Omnibus & Touring Co. Ltd.	230	Sidney Garcke
13.	East Kent Road Car Co. Ltd.	418	Sidney Garcke
14.	East Midland Motor Services Limited	155	J. S. Wills
15.	East Yorkshire Motor Services Limited	210	J. S. Wills
16.	Everingham Bros. Ltd.	24	S. H. Everingham
17.	Fishwick, J., & Sons	29	B. Fishwick
18.	Gosport & Fareham Omnibus Company	48	H. O. White
19.	Greenock Motor Services Company	100	Sir Wm. J. Thomson
20.	Griffin Motor Co. Ltd.	36	T. J. Jones
21.	Hebble Motor Services Limited	81	J. S. Wills
22.	Hicks Bros. Ltd.	39	Maxwell Hicks
23.	Highland Transport Co. Ltd.	49	Provost H. MacKenzie
24.	J. James & Sons Ltd.	43	A. R. James
25.	Lanarkshire Traction Co. Ltd.	107	R. Beveridge
26.	Lancashire United Transport & Power Co. Ltd.	264	E. H. Edwardes
27.	Llanelly & District Electric Supply Co. Ltd.	8	S. Dudman
28.	Maidstone & District Motor Services Limited	492	Col. H. I. Robinson
29.	Mansfield District Traction Company	83	Sir Joseph Nall
30.	Mexborough & Swinton Traction Company	4	J. S. Wills
31.	Midland General Omnibus Co. Ltd.	188	Sir Joseph Nall
32.	Newbury & District Motor Services Limited	60	J. H. Watts
33.	Northern General Transport Co. Ltd.	483	R. J. Howley
34.	North Western Road Car Co. Ltd.	526	J. S. Wills
35.	Potteries Motor Traction Co. Ltd.	398	R. W. Birch
36.	Ralph's Garages Limited	34	E. V. Ralph
37.	Red & White Services Limited	335	J. H. Watts
38.	Rhondda Transport Co. Ltd.	161	H. Kingsbury
39.	Ribble Motor Services Limited	1,001	J. S. Wills
40.	Scottish Motor Traction Co. Ltd.	607	Sir Wm. J. Thomson
41.	Scout Motor Services Limited	21	E. Watkinson
42.	Sheffield United Tours Limited	72	J. S. Wills
43.	Southdown Motor Services Limited	543	Sidney Garcke
44.	South Wales Transport Co. Ltd.	288	J. S. Wills
45.	Stratford-upon-Avon Blue Motors Limited	21	D. M. Sinclair
46.	Sunderland District Omnibus Co. Ltd.	82	H. A. Stagg
47.	Trent Motor Traction Co. Ltd.	334	R. J. Howley
48.	Tynemouth & District Transport Co. Ltd.	44	R. J. Howley
49.	Tyneside Tramways & Tramroads Company	20	G. W. Hayter
50.	United Welsh Services Limited	114	J. H. Watts
51.	Venture Limited	45	T. I. Thornycroft
52.	Wakefield's Motors Limited	16	R. J. Howley
53.	W. Alexander & Sons Ltd.	1,230	Sir Wm. J. Thomson
54.	W. C. Standerwick Limited	60	J. S. Wills
55.	Western S.M.T. Co. Ltd.	430	Sir Wm. J. Thomson
56.	Western Welsh Omnibus Co. Ltd.	496	J. S. Wills
57.	West Riding Automobile Co. Ltd.	260	H. England
58.	Yelloway Motor Services Limited	32	Herbert Allen
59.	Yorkshire Traction Co. Ltd	322	J. S. Wills
60.	Yorkshire Woollen District Transport Co. Ltd.	254	J. S. Wills
61.	Youngs Bus Service Limited	112	R. L. Young
	Total	13,652	

January 1, 1944

Notes and News

Barsi Light Railway Co. Ltd.—The directors have declared a second interim dividend on the ordinary stock of 2½ per cent. actual, payable on October 27. No final dividend will be recommended at the annual general meeting to be held later.

Assistant Mechanical Engineer Required.—An assistant mechanical engineer is required for the Tanganyika Government Railways, for one tour of 24 to 36 months, with possible permanency. Details are given in our Official Notices on page 367.

Underground Railway Plan for Rio de Janeiro.—A commission of specialists from the Central Brazil Railway and the Brazilian Ministry of Transport & Public Works is studying a plan for the construction of an underground railway in Rio de Janeiro.

Railway Clerks' Strike in India.—After all but one had failed to return to duty on the expiry of the notice calling on them to do so, 680 temporary clerks of the Accounts Branch of the North Western Railway at Lahore, who had gone on strike, were discharged. Their demands had included revision of their grade and an increase in the cost-of-living allowance.

L.M.S.R. "City of Leicester" Locomotive.—At a ceremony held at Leicester on October 9, the Lord Mayor named the L.M.S.R. non-streamline "Coronation" class locomotive No. 6252 *City of Leicester*. Many prominent persons of the city were present, and the London Midland & Scottish Railway Company was represented by Mr. G. L. Darbyshire, Vice-President.

Industrial Developments in Chile.—The Chilean Government has placed, for future delivery, substantial orders for transformers, generators, and other electrical equipment. It is stated that three large power plants already are scheduled for production, and that others are planned for the near future. In addition, a large steel mill is to be built. Post-war development is being directed by a Government agency—Corporacion de Fomento de la Produccion—to which some reference was made in our issue of May 5 last, page 464.

National Transport Board in Argentina.—A recently-issued Argentine Government Decree has created a National Transport Board, to function as a dependency of the Ministry of Public Works, by the amalgamation of the National Co-ordination of Transport Committee and the National Railway Board. The new board will be composed of a president, a general secretariat, the National Railway Board, and five other boards (legal affairs, transport planning, commercial and financial, motor transport control, and national defence). Pending the final organisation of the new board, the National Railway Board will function as heretofore.

La Guaira & Caracas Railway Co. Ltd.—Revenue account for the year 1943 shows that railway receipts amounted to £74,351, an increase of £4,129, and working expenses were £52,835, an increase of £3,961, leaving net receipts of £21,516. The £23,546 profit on exchange added to other credits bring the total net revenue up to £49,191. Deducting £22,968 for debenture charges, etc., leaves a balance of £26,222, which, deducted from the debit balance brought forward, leaves a debit balance of £12,039. Goods traffic exceeded the record figure for the previous year. This was due to the suspension of the passenger service at the request of the National Transport Committee and to its replacement by an increased goods service. As a result, goods traffic receipts (£69,868) increased by £12,263, and passenger sreceipts decreased by £7,286.

Chief Engineer Required.—Details are given in our Official Notices (page 367) concerning applications which are invited for the appointment of chief engineer to the Southern National Omnibus Co. Ltd. and Western National Omnibus Co. Ltd.

Argentine Railway Pensions.—With reference to the Government Decree of last June, which established a scale of reductions applicable to railway pensions of persons living abroad, the National Railway Pensions Fund authorities announced recently that the measure does not affect those who obtained the necessary permits to live abroad before the date of the Decree.

Road Accidents in August, 1944.—The return issued by the Ministry of War Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of August last shows 501 deaths (compared with 404 in August, 1943), 2,826 seriously injured (compared with 2,443 in August, 1943), and 7,837 slightly injured (compared with 7,064 in August, 1943).

Electric Traction in Natal.—During March last, a record was set up for electric traction in Natal by the South African Railways. In that month a total of 405,978,443 ton-miles was achieved under electric traction in the province. The previous highest figure was 393,032,333 ton-miles, recorded in October, 1941. The record amount of electric current of 22,403,336 units was consumed during March, against the previous record of 22,080,100 units in March, 1943.

Dorada Railway Co. Ltd.—The report for the year 1943 shows that the gross revenue of the railway was £272,661 and the working expenses were £160,321. The balance of net revenue after providing for debenture charges, exchange, taxation, etc., was £51,008. The dividend for the year is 3 per cent., free of tax, and £14,747 is carried forward. The total amount of goods hauled was 231,739 tons and the number of passengers carried 370,219, as compared with 217,169 tons and 289,646 passengers in 1942. In goods traffic the only serious decrease was in coffee. Passenger traffic benefited from a new passenger service which links up with both the Ambalema-Ibague and the Girardot Railways; this makes it possible for passengers to reach Bogota, and other important places on the same day, thus attracting long-distance passengers to the company's route.

L.P.T.B. Extension of Time Order.—The Minister of War Transport has made the London Passenger Transport Board (Extension of Time) Order, 1944 (S.R. & O., 1944, No. 1058), extending by three years the time now limited (1) by Section 43 of the London Passenger Transport Board Act, 1937, for the completion of works in Holborn, and for the completion of Railways Nos. 1 and 2 in Southwark and Camberwell authorised by the London Electric, Metropolitan District and Central London Railway Companies (Works) Act, 1931, (2) by the Act of 1939 for the running of trolley vehicles on certain routes in Camberwell and Kingston, and for the completion of works in eight metropolitan boroughs, (3) by Sections 5 and 29 of the Act of 1936 and Sections 29 and 33 of the Act of 1938, as extended by an Order of 1941, for the running of trolley vehicles on certain routes in Hampstead, Islington, Cheshunt and Enfield, and for the completion of works Nos. 20, 38, and 38A in Kensington. Several extensions of time for purchase of lands are granted.

Postal Traffic in August.—Average daily receipts of the Post Office in the United Kingdom for August fell by 2 per cent. compared with July. This represents

British and Irish Railway Stocks and Shares

Stocks	Highest 1943	Lowest 1943	Prices Oct. 10, 1944	Prices Rise/Fall
G.W.R.				
Cons. Ord.	65½	57½	57	+ ½
5% Con. Pref. ...	120½	108	114½	— 1
5% Red. Pref. (1950)	110½	106	105	—
5% Rt. Charge ...	137½	123½	130½	—
5% Cons. Guar. ...	135½	121 1/16	127	+ ½
4% Deb.	118	107½	114½	—
4½% Deb.	119	109 1/16	115½	—
4½% Deb.	124½	116	120½	—
5% Deb.	138	127	133½	—
2½% Deb.	77	72½	74½	—
L.M.S.R.				
Ord.	34 1/16	28	29½	+ ½
4% Pref. (1923) ...	66½	58	58	—
4% Pref.	80½	73	74	— ½
5% Red. Pref. (1955)	105½	102	103½	—
4% Guar.	107	98½	100	—
4% Deb.	109½	103½	105½	—
5% Red. Deb. (1952)	111½	108	109½	—
L.N.E.R.				
5% Pref. Ord. ...	12 7/16	7⅜	8⅛	+ ⅛
Def. Ord.	5⅜	3⅜	4	+ ⅛
4% First Pref. ...	66½	57½	58	— ½
4% Second Pref. ...	36½	30½	30	— ½
5% Red. Pref. (1955)	99⅜	93	98½	—
4% First Guar. ...	102½	94	98½	+ ½
4% Second Guar. ...	93½	85⅜	89½	—
3% Deb.	86⅜	78⅜	83	—
4% Deb.	109 7/16	101⅜	105	—
5% Red. Deb. (1947)	106¼	102	102	—
4½% Sinking Fund Red. Deb.	108	103½	105½	—
SOUTHERN				
Pref. Ord.	80	72½	74	—
Def. Ord.	26½	20⅛	24	+ ½
5% Pref.	119½	106⅛	114½	—
5% Red. Pref. (1964)	114	108½	113½	—
5% Guar. Pref. ...	136	122	127½	—
5% Red. Guar. Pref. (1957)	117	109⅛	113½	—
4% Deb.	117½	106	112½	—
5% Deb.	137	126	133	—
4% Red. Deb. (1962-67)	112	106½	109½	—
4% Red. Deb. (1970-80)	112	107	109½	—
FORTH BRIDGE				
4% Deb.	109	104⅝	104	—
4% Guar.	105	102½	102½	—
L.P.T.B.				
4½% "A"	125 11/16	114	120½	—
5% "A"	133 3/16	123	130½	—
3% Guar. (1967-72)...	100¼	97	99	—
5% "B"	124	114	121½	—
"C"	72	53	68	—
MERSEY				
Ord.	34½	27	34	—
3% Perp. Pref. ...	68	59½	69	—
4% Perp. Deb. ...	104	102½	103	—
3% Perp. Deb. ...	83	78½	79	—
IRELAND*				
BELFAST & C.D.				
Ord.	9	6	10	+ 1
G. NORTHERN				
Ord.	24½	16	27½	+ ½
Pref.	—	—	44	+ ½
Guar.	—	—	64	+ 1
Deb.	—	—	83½	—
G. SOUTHERN				
Ord.	30	9½	56	— 3
Pref.	30	11	56	— 3½
Guar.	64	26½	73½	— ½
Deb.	88½	51⅜	95⅜	+ ⅛

* Latest available quotation

OFFICIAL NOTICES

ASSISTANT MECHANICAL ENGINEER required for the Tanganyika Government Railways for one tour of 24 to 36 months, with possible permanency. Salary scale £480 rising to £720 a year. A higher commencing salary may be offered to well qualified candidates. Cost of living allowance for married men is £80 on salary of £480 a year. Free quarters and passages. Candidates should be Associate Members of the Institution of Mechanical Engineers or hold an engineering degree or equivalent qualification and have served a pupilage or full apprenticeship with a British Railway passing through all sections of the Locomotive repair and building works, including experience in the Drawing Office and Running Sheds, and have had at least two years' subsequent experience.

Applicants should write, quoting C.2170A, to the Ministry of Labour and National Service, Room 432, Alexandra House, Kingsway, London, W.C.2, for the necessary forms, which should be returned completed on or before 23rd October, 1944.

APPLICATIONS are invited for the appointment of CHIEF ENGINEER to the Southern and Western National Omnibus Companies—fleet 900 vehicles. Applicants should have had successful experience in the maintenance of omnibuses or other heavy road transport vehicles and should have had suitable technical training, together with a knowledge of modern maintenance practice and workshop organisation. Knowledge of the Roads Traffic Acts would be an advantage.

Salary will be in accordance with successful applicant's standing and experience of engineering executive work. Applications in confidence, stating age and full particulars of qualifications and experience, should be addressed to the General Manager, Western National Omnibus Co. Ltd., 48-50, Queen Street, Exeter.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to :—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

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less than half the normal peacetime drop Compared with a year earlier, August receipts rose by 4·8 per cent., against an average increase of 7·4 per cent. for the first seven months of the year.

Institution of Civil Engineers Presidential Address.—Mr. F. E. Wentworth-Sheilds, O.B.E., will deliver his presidential address to the Institution of Civil Engineers at 5.30 p.m. on November 7 at the Institution, Great George Street, Westminster, S.W.1.

Institution of Mechanical Engineers Presidential Address. — Dr. H. R. Ricardo, B.A., LL.D., F.R.S., will deliver his presidential address, on the subject of "Applied Research," to the Institution of Mechanical Engineers at 5.30 p.m. on October 20 at the Institution, Storey's Gate, Westminster, S.W.1.

Record Suburban Traffic in South Africa.—Suburban passenger traffic on the Western Transvaal System of the South African Railways, including the Germiston-Pretoria, section which has increased steadily during the last five years, established a record in the six months ended March 31 last, when 34,946,745 passengers were carried. This represents an increase of 4,433,294 over the corresponding period of last year, and of 15,676,444 compared with the six months ended March 31, 1939.

Glamorganshire Canal Navigation.—A general meeting of members of the Company of Proprietors of the Glamorganshire Canal Navigation will be held at 3, Castle Street, Cardiff, at 11 a.m. on November 9, to receive the account of the liquidator showing how the winding-up of the company has been conducted and its property disposed of, and to pass an extraordinary resolution as to the disposal of the books and papers of the company and of the liquidator. The company was incorporated by Act of June 9, 1790. The canal was opened from Merthyr to Cardiff in 1794. It possessed extremely wide powers in early years.

Presentations of L.N.E.R. Medal.—At a recent ceremony, Sir Ronald Matthews, Chairman of the London & North Eastern Railway Company, presented the L.N.E.R. Medal to Mr. Benjamin Gimbert, G.C., driver, and to Mrs. Nightall on behalf of her son, the late Mr. J. W. Nightall, G.C., fireman. These presentations were made in connection with the conspicuous gallantry which, it will be recalled, was displayed by these two railwaymen when they discovered that a wagon of their train, containing ammunition, was on fire. A description of the incident, which occurred near a station in Cambridgeshire, and which resulted in the loss of Mr. Nightall's life, was given in our August 4 issue, in which it was recorded also that the King had awarded the George Cross to Mr. Gimbert and, posthumously, to Mr. Nightall. (See illustration, page 360).

Junior Institution of Engineers.—At the inaugural meeting for 1944-45, in the lecture room of the Institution, 39, Victoria Street, S.W.1, on December 9, at 2.30 p.m., Sir Maurice Denny, Bt., C.B.E., the retiring President, will induct Major-General K. C. Appleyard, O.B.E., as his successor.

P.W.I. South Wales Section Exhibition.—The South Wales Section of the Permanent Way Institution is to hold an exhibition, in connection with the Institution's Diamond Jubilee, in the National Museum of Wales, Cardiff from October 15 to 21. Mr. V. A. M. Robertson, C.B.E., M.C., President of the P.W.I., will preside at an inaugural meeting on October 14 at 3 p.m. The Lord Mayor of Cardiff will then open the exhibition.

Basic Industries for Brazil.—President Vargas of Brazil recently swore into office an economic planning commission, the main aim of which, he stated, would be the large-scale development of Brazilian resources. The Government would assist all worthy enterprises without interfering with private initiative. It is stated that the Brazilian Government is anxious to establish national basic industries to safeguard the economic development of the country and make it independent of imports of any articles based on raw materials which it possesses in large quantities. Various State and other organisations are said to be furthering the creation of Brazilian siderurgical and chemical industries. The creation of a national industry for electrical material is also under consideration.

Southern San Paulo Railway Debenture Stock.—Following the announcement of a settlement with the Brazilian Government, the 5 per cent. Debenture Stockholders' Committee of the Southern San Paulo Railway Co. Ltd. states that the trustees are now in a position to make a cash distribution at the rate of £80 for every £100 stock. It is estimated that some contribution may have to be made out of the proceeds of the settlement towards legal and other charges and expenses here and in Brazil and for the expenses of distribution to debenture holders and liquidation of the company. There should, however, be a cash balance, after making the 80 per cent. distribution and providing for expenses, to enable a further small distribution to be made. Mention of the settlement with the Government was made on page 174 of *The Railway Gazette* for August 18.

Permanent-Way Materials Produced in Spain.—According to statistics recently published by the Basque Chamber of Commerce, the output of railway permanent-way materials in Vizcaya Province, Spain, during 1943 amounted to 6,102 *tonnes*, compared with 2,988 *tonnes* in 1942. Rails produced amounted to 20,167 *tonnes* during 1943, compared with 13,773 *tonnes* in 1942.

Contracts and Tenders

Below is a list of orders placed recently by the Egyptian State Railways :—

Horsburgh & Francis Limited : I.H. tape.
Samuel Osborn & Co. Ltd. : Mild steel.
P. & W. Maclellan Limited : Mild steel.
Morgan Crucible Co. Ltd. : Brushes.
General Electric Co. Ltd. : Wire brushes.
Midland Electric Mfg. Co. Ltd. : Knife switches.
British Tabulating Machine Co. Ltd. : Hollerith cards.
Invicta Electrodes Limited : Electrodes.
Phosphor Bronze Co. Ltd. : Bronze tobin.
British Oxygen Co. Ltd. : Welding rods.
Buck & Hickman Limited : Instruments for power house, steel figure stamps, stainless steel.
R. Hyde & Son Ltd. : Steam chest covers.
S. & C. Bishop & Co. Ltd. : Gauge glasses, lenses.
Standard Telephones & Cables Limited : Transmission measuring apparatus, etc.
National Gas & Oil Engine Co. Ltd. : Spare parts for diesel engines.
Babcock & Wilcox Limited : Rubber hose.
Clyde Crane & Booth Limited : Machine plants, and parts.
Ericsson Telephones Limited : Switchboard magnetos.

Forthcoming Meetings

October 21 (*Sat.*).—Institute of Transport Metropolitan Graduate & Student Society, at the Institution of Electrical Engineers, Victoria Embankment, W.C.2, 2.15 p.m. Address by Mr. Robert Kelso, President of the Institute of Transport.

October 23 (*Mon.*).—Institution of Electrical Engineers, Victoria Embankment, W.C.2, 5.30 p.m. Informal meeting. Discussion (to be opened by the President) on "The engineer's part in certain post-war problems."

October 25 (*Wed.*).—Institute of Welding, at the Institution of Civil Engineers, Great George Street, S.W.1, 6 p.m. Symposium on "Welding in British industry after the war."

Railway Stock Market

Business in stock markets remained on a moderate scale, but the undertone generally was firm, and investment demand continued to strengthen British Funds. Industrial shares showed few features but kept steady with very little selling in evidence. Main feature in foreign bonds was again an upward trend in Brazilian stocks. Home railway junior stocks, after becoming reactionary, rallied, and were slightly higher on balance; yield considerations attracted better demand. Moreover, it now appears to be becoming more generally recognised that the return on home railway junior stocks compares very favourably with that on shares of companies connected with other industries whose post-war outlook also will depend in a large measure on Government policy which has yet to be clearly indicated. Prior charges had a firm appearance, in sympathy with the trend in gilt-edged stocks. Argentine rails showed small downward movements because of the limited demand in evidence, reflecting uncertainty as to the political outlook in the Republic and the disposition to await the results and annual statements of the railways for the year to June 30 last. French railway bonds came in for renewed demand, prices rallying strongly, although it is realised that a long time may have to elapse before interest payments can be resumed. United of Havana 1906 debentures further improved; it is assumed that the expected capital scheme is probably in preparation only, and may not be presented for some time yet. Canadian Pacifics moved within narrow limits, having failed to recover the decline which followed evidence of the effect on earnings of the wages award and the diminished hopes of an improved dividend. Cordoba Central Trust debentures held recent gains. Rhodesia Railways 4½ per cent. debentures changed hands up to 101, and elsewhere Barsi Light Railway stock was 119 xd. Mexican Railway 6 per cent. debentures showed a fair number of dealings around 16½.

The rally in home railways included not only junior stocks but also L.M.S.R. and L.N.E.R. preferences, yields on which are attractive when judged in relation to their investment merits. These preference stocks, of course, are in receipt of their full dividends, except L.N.E.R. second preference, whose dividend seems likely to be maintained at the same rate as for 1943. Southern preferred ordinary improved, there also being a good yield in this case and dividend requirements will remain well covered under the fixed rental agreement. Moreover, among other stocks, L.N.E.R. first and second guaranteed also give an attractive return when judged in conjunction with cover for dividends and their investment status.

Compared with a week ago, Great Western ordinary at 56¾ was unchanged on balance; the 5 per cent. preference at 115½ also was maintained, and the 4 per cent. debentures remained at 114½. L.M.S.R. ordinary moved up to 29½, compared with 28¾ a week ago; the senior preference strengthened from 74 to 74½, and the 1923 preference from 57½ to 58. The 4 per cent. guaranteed stock remained at par. L.N.E.R. second preference improved from 29¾ to 30½, and the first preference from 57½ to 58; the preferred at 8½ and the deferred at 4 also had a firmer appearance. L.N.E.R. first and second guaranteed were 98 and 89½ respectively. Southern preferred strengthened from 73½ to 73¾; the deferred, after an earlier decline, rallied to 23⅜; the 5 per cent. preference kept steady at 114 and the 4 per cent. debentures at 113. London Transport "C" at 67¾ was unchanged on balance, thus continuing to be valued on a considerably smaller yield basis than junior stocks of the main-line railways; the general belief is that higher dividends on London Transport "C" should be forthcoming after the end of the fixed rental agreement.

B.A. Gt. Southern ordinary was maintained at 12, but the 4 per cent. debentures eased to 56. B.A. Western 4 per cent. debentures were 49½ and Central Argentine 4 per cent. debentures 49. United of Havana 1906 debentures rose further from 28½ to 30¾. Among French rails, Midi rallied from 70½ to 72¾ and Nord from 83 to 87. Canadian Pacifics were 14⅛, compared with 14⅜ a week ago. Leopoldina debentures were 53¼ and San Paulo ordinary steady at 48½.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1942/3	No. of Weeks	Aggregate traffics to date: Totals 1943/4	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1943	Prices: Lowest 1943	Prices: October 10, 1944	Yield % (See Notes)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	1.10.44	32,540	– 810	39	1,139,180	1,122,200	+ 16,980	Ord. Stk.	15¾	10	10	Nil
	Argentine North Eastern	753	30.9.44	17,796	+ 1,302	13	220,506	190,470	+ 30,036	"	7⅞	5	4½	Nil
	Bolivar	174	Sept., 1944	5,238	– 518	39	47,755	47,669	+ 86	6 p.c. Deb.	22½	18	15½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	23½	19	19	Nil
	Buenos Ayres & Pacific	2,807	30.9.44	118,200	+ 15,000	13	1,476,060	1,156,620	+ 319,440	Ord. Stk.	8½	5½	5½	Nil
	Buenos Ayres Great Southern	5,080	30.9.44	139,860	– 26,640	13	2,121,180	1,939,080	+ 182,100	Ord. Stk.	17½	9½	12	Nil
	Buenos Ayres Western	1,924	30.9.44	65,520	+ 9,840	13	816,840	660,360	+ 156,480	"	16	9⅞	10	Nil
	Central Argentine	3,700	30.9.44	184,116	+ 36,411	13	2,250,612	1,761,468	+ 489,144	"	10¾	6½	8½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4⅞	3	4	Nil
	Cent. Uruguay of M. Video	972	30.9.44	31,264	– 3,878	13	403,256	415,934	– 12,678	Ord. Stk.	7⅛	4½	4½	Nil
	Costa Rica	262	July, 1944	28,322	+ 5,071	4	28,322	23,251	+ 5,071	Stk.	16	12½	16	Nil
	Dorada	70	Aug., 1944	29,875	+ 4,645	35	207,565	172,147	+ 35,418	1 Mt. Deb.	96	92	100½	£5 19 5
	Entre Rios	808	30.9.44	22,194	+ 270	13	294,930	269,994	+ 24,936	Ord. Stk.	9	5½	5	Nil
	Great Western of Brazil	1,030	30.9.44	20,600	+ 2,200	39	827,300	613,500	+ 213,800	Ord. Sh.	59/9	24/4½	30/-	Nil
	International of Cl. Amer.	794	Aug, 1944	$528,904	– $11,492	35	$5,306,660	$5,025,556	+ $281,104	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	2½	1½	1	Nil
	La Guaira & Caracas	22½	Sept., 1944	7,036	– 999	39	71,331	76,460	– 5,129	5 p.c. Deb.	90	80	79	6½
	Leopoldina	1,918	30.9.44	66,234	+ 27,100	39	1,839,231	1,344,979	+ 494,252	Ord. Stk.	7¾	4	4	Nil
	Mexican	483	30.9.44	ps. 696,000	+ ps. 105,800	13	ps. 6,285,500	ps. 5,371,300	+ ps. 914,200	Ord. Stk.	1⅛	⅜	⅛	Nil
	Midland Uruguay	319	Aug., 1944	16,470	+ 1,810	9	34,921	31,115	+ 3,806	—	—	—	—	—
	Nitrate	382	30.9.44	3,658	– 2,467	39	135,901	114,950	+ 20,951	Ord. Sh.	83/9	71/3	70/-	£3 11 5
	Paraguay Central	274	29.9.44	£55,722	+ £3,592	13	£736,092	£733,030	+ £3,062	Pr. Li. Stk.	75	51½	72	8¦
	Peruvian Corporation	1,059	Sept., 1944	129,927	+ 22,660	13	375,652	314,208	+ 61,444	Pref.	17⅛	10⅛	10	Nil
	Salvador	100	June, 1944	c 80,000	– c 26,000	52	c 1,484,000	c 1,243,000	+ c 241,000	—	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	71	57	49	£4 1 8
	Taltal	156	Aug., 1944	3,720	– 2,495	9	5,535	9,730	– 4,195	Ord. Sh.	37/6	20/-	17/6	Nil
	United of Havana	1,301	30.9.44	54,617	+ 9,500	13	646,399	666,467	– 20,068	Ord. Stk.	⅞	3½	3	Nil
	Uruguay Northern	73	Aug., 1944	1,320	– 120	9	2,806	2,827	– 21	—	—	—	—	—
Canada	Canadian Pacific	17,018	30.9.44	1,749,000	+ 48,800	39	47,590,600	43,203,800	+ 4,386,800	Ord. Stk.	18	13⅞	14	£3 11 5
India†	Barsi Light	202	July, 1944	24,878	– 3,817	17	100,365	91,770	+ 8,595	Ord. Stk.	—	—	119xd	£3 15 0
	Bengal-Nagpur	3,267	Aug., 1944	1,202,400	+ 284,550	22	5,184,150	5,153,250	+ 30,900	Ord. Stk.	104½	101½	—	—
	Madras & Southern Mahratta	2,939	Mar., 1944	358,125	– 7,925	52	10,447,866	8,913,924	+ 1,533,924	—	—	—	—	—
	South Indian	2,349	20.12.43	199,410	+ 24,449	37	5,321,558	4,562,445	+ 750,113	—	—	—	—	—
Various	Egyptian Delta	607	10.9.44	16,200	+ 3,011*	23	293,300	229,115	+ 64,185	Prf. Sh.	6 1/16	2⅞	4	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	45	32	61½	Nil
	Midland of W. Australia	277	Aug., 1944	20,875	– 15,324	9	40,053	70,424	– 30,371	Inc. Deb.	101	93	99½	£4 0 5
	Nigerian	1,900	29.7.44	281,567	– 17,671	4	—	—	—	—	—	—	—	—
	South Africa	13,291	2.9.44	905,173	+ 66,189	22	19,290,134	18,262,808	+ 1,027,326	—	—	—	—	—
	Victoria	4,774	April, 1944	1,188,999	– 212,162	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current price and are within a fraction of ⅛. Argentine traffics are given in sterling calculated @ 16⅜ pesos to the £
† Receipts are calculated @ 1s. 6d. to the rupee